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TWENTIETH ANNUAL REPORT

OF THE

Ohio State Board of Agriculture,

WITH

AN ABSTRACT OF THE PROCEEDINGS

OF THE

COUNTY AGRICULTURAL SOCIETIES:

TO THE

GENERAL ASSEMBLY OF OHIO, FOR THE YEAR 1865.

COLUMBUS:
RICHARD NEVINS, STATE PRINTER.
1866.

PREFACE.

The following pages contain an account of a hasty trip over the greater portion of the German States and a portion of France. The time employed was from April 15, at which time I landed at Hamburg, until the first of July, at which time I left France for England. The account is necessarily sketchy and imperfect, for the reason that it is almost a matter of impossibility to learn all the details of Agriculture in that extent of territory, in the short space of time devoted to it. I made notes of that which I considered the most important, and have introduced many items not strictly agricultural, yet which appeared to me to have a bearing on the condition of the industrial portion of the States visited.

It would require a sojourn of several years to become acquainted with all the details of the several systems of agriculture, the improvements being introduced, and to ascertain to what extent the various institutions for agricultural education exert a beneficial influence; then, too, the space at command in the report is entirely too limited to do the subject that justice which it merits. It is hoped that the several subjects discussed in these pages are sufficiently full and clear to convey a correct idea of them, and that they may prove valuable for reference, rather than this to be an entertaining volume of travelers' gossip. I have carefully avoided personal incidents of travel; a description of towns or cities, churches, theatres, operas, or other public buildings; costumes of the people, or their habits, manners and customs, for the reason that I could not persuade myself that they had any relation to agricultural affairs, although such descriptions might prove more entertaining and instructive, in other directions, than the matters recorded.

I preferred to make the report on the agriculture of Germany as full as possible, for the reason that here, in America, we know less of German agriculture than we do of French or English. It appears to me that our ignorance of German Agriculture is more attributable to the difference in language, between this country and that, than to any other cause, for the Germans are not like the Japanese, that they forbid strangers to travel their country, or that they refrain from publishing their attainments in every department of human knowledge. Some kind and valued friends suggested to me to write as little as possibly would comport with the nature of the subject on German agriculture, and treat as fully as possible on that of England, on the ground that English and American agricul-

201412

ture were more identical than the American and German. My observations do not confirm this view: four-fifths of England is kept for grazing, whilst in America, and especially in Ohio, we have scarcely one-fifth of the area in grazing lands. Sir Morton Peto, in his work on the "RESOURCES AND PROSPECTS OF AMERICA," has well said, in substance, that the bright and long continued sunshine and Indian corn in America make the entire sytem of agriculture as dissimilar from that of England as may well be conceived. The American system (if we have any at all,) partakes full as much of that of Germany as it does of England, and so far as meteorology is concerned, we certainly are much more identical with Germany than with England.

I very much regret being compelled to omit the tour through England, Scotland and Ireland, in the present volume. The size of the volume is limited by law, and a view of English agriculture could not be given in a few pages, which would do either the subject justice, or be any credit to me as an observer.

The tour through France I have limited to agricultural organizations, agricultural educational facilities, and a description of the breeds, management and uses of the French races of the horse. The French races of cattle bear different names from those of Germany, and in my opinion are inferior to them. Other than the Rambouillet and Mauchamp breeds of sheep, scarcely any in France are worthy of mention in any other than a historic sense; whilst I could add nothing to what is already well known in this country of the Rambouillet and Mauchamp races or breeds. Agriculture proper has not yet attained that degree of perfection and system everywhere so manifest in Germany, and considering the space already occupied with the best farming I saw, thought it not improper to omit discussing that of France.

The tour was one which I desired to make from the time that I learned the German and French languages. This desire has been gratified, and I return to the shores of America, the land of my birth and that of my parents, with a far greater appreciation of the wisdom and goodness of our government and institutions than I had conceived of before I went abroad.

JOHN H. KLIPPART,
Secretary.

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TREASURER'S REPORT.

RECEIPTS.

1865.				
January	4.	Balance on hand at settlement		$7,909 19
March	15.	Received from Treasurer of State		1,800 00
May	13.	" "		1,500 00
		" Comstock, for lumber		364 25
		" Columbus city subscription		5,000 00
Sept'r	12.	Receipts of Fair	$895 41	
	13.	" "	2,147 50	
	14.	" "	5,866 98	
	15.	" "	1,748 76	
				10,658 65
		" for forage		38 73
		" refreshment stands		2,032 00
		" lumber sold		5,962 76
		" from miscellaneous sources		667 20
		" appropriation for engraving		300 00
				36,233 28

EXPENDITURES.

On account of Library	$1,895 47
' Ohio Pomological Society	300 00
" refreshments	1,217 40
" postage	153 71
" express	182 20
" members of the Board	91 50
" materials	755 30
" labor	2,027 78
" music	667 00
" forage	375 98
" lumber	2,150 62
" police	1,257 25
" printing and advertising	1,165 42
" telegraph	86 07
" superintendents	241 70
" premiums	5,191 55
" Jno. H. Klippart, salary and expenses	1,966 31
" G. G. Frankenberg, clerk	480 00
" miscellaneous expenditures	2,196 45
Cash on hand	13,831 58
Total	36,233 28

The undersigned committee having examined the books and vouchers, as well as the former committee's report, find the above to be correct, and submit it as their report.

N. J. TURNEY,
D. McMILLAN.

Columbus, O., Jan. 30, 1866.

MEMBERS OF THE BOARD FOR 1865-6.

1865.

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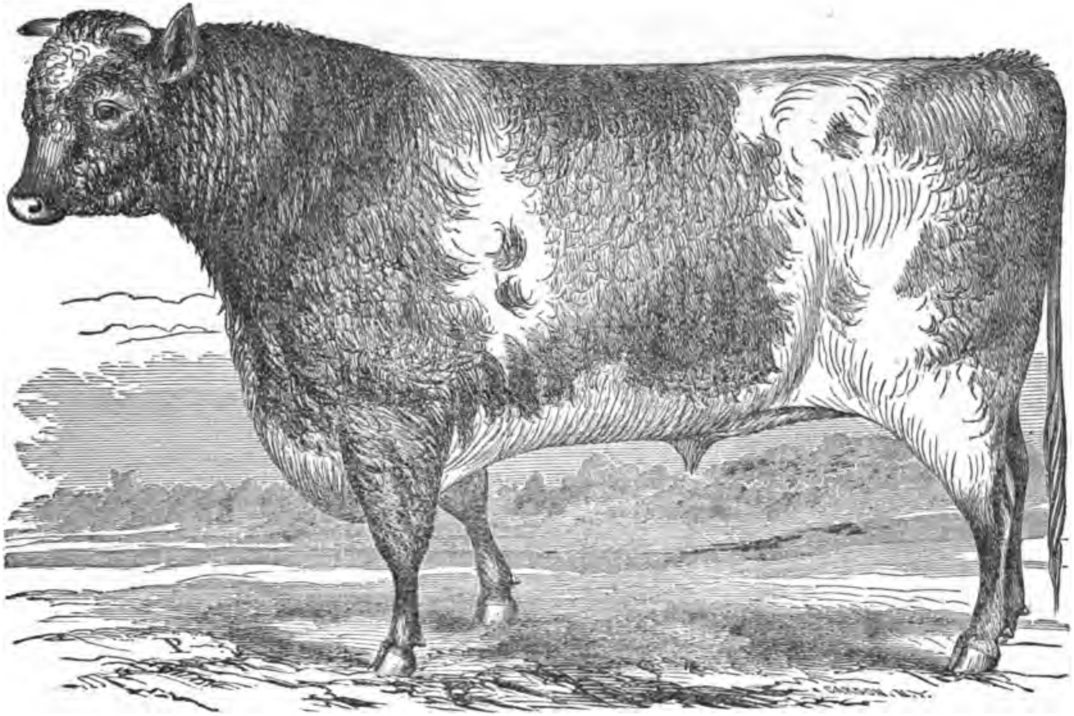
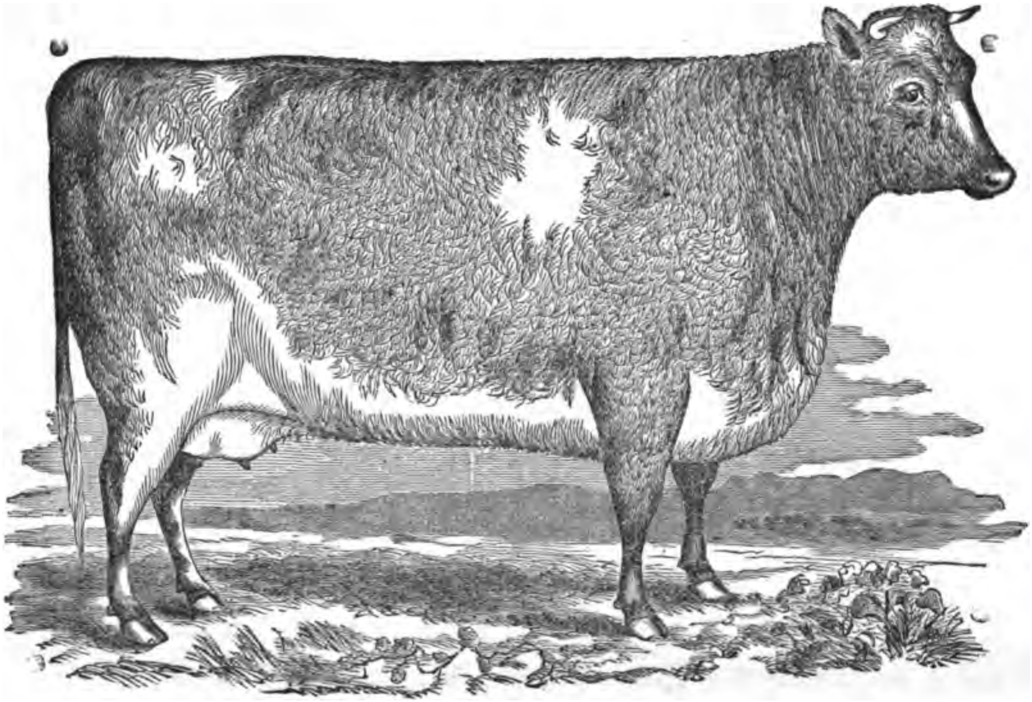


Duke Imperial (5526) *at two years old*—Owned by HILLS & JONES.



Crystal Queen at two years old—Owned by HILLS & JONES, Delaware, O.

REPORT OF AN AGRICULTURAL TOUR IN EUROPE.

BY JOHN H. KLIPPART.

NELSON J. TURNEY, *President Ohio State Board of Agriculture:*

In accordance with the commission you were kind enough to give me, and the letter of instruction from Hon. Thos. C. Jones, I proceeded to make a very hurried agricultural tour of Europe. I left New York city on Saturday, April 1st, 1865, and after a somewhat rough passage on the steam packet-ship *Borussia* (Capt. H. F. Schwenzen), landed in the old city of Hamburg, situated on and near the mouth of the river Elbe, on the 15th day of April—being the day after the one which hereafter will ever be memorable in the History of the United States, as the day in the evening of which President LINCOLN was assassinated.

HAMBURG is one of the Hanseatic or free towns; that is, it is not under the government of any kingdom, state or province, but is governed by Senators—much like cities in the United States are governed by a city council. The territory over which the authority extends embraces some 50 or 60 square (English) miles. ALTOONA, about a mile west of Hamburg, is in Holstein, and is subject to the laws of Holstein; ST. PAULI is a town situated between Hamburg and Altoona, and is called the *vorstadt*, or outskirts of Hamburg. ST. GEORGE is a town adjoining Hamburg on the east, and is also called a *vorstadt.*

From its location Hamburg is necessarily one of the most important commercial cities in northern Germany. Situated on the Elbe, and some 40 or 50 miles from its mouth; the river being of sufficient depth to permit the entrance to the Hamburg docks of the largest commercial vessels afloat, necessarily makes it the point from whence all the shipping from Holstein, Mecklenburg, Hanover, and the provinces or countries through which the Elbe flows and is navigable, centre at Hamburg. But Hamburg is a free city in another sense of the term; it has no custom-house, and there are neither import nor export duties exacted from its commerce with any portion of the globe. Any articles of commerce may be shipped from any of the kingdoms, duchies, or provinces to Hamburg *free* of duty, but all merchandize or articles of commerce are subject to duty if shipped from Hamburg into any of the kingdoms, duchies or provinces, as soon as they pass the boundary line of Hamburg. Hence parties shipping reaping or mowing machines, or any other kind of agricultural machines, implements or products, from New York, can ship to Hamburg free of duty, but the moment they pass the line into Holstein, Mecklenburg, or Hanover, they are subject to duty.

SCHLESWIG-HOLSTEIN, or the two duchies for the integrity of which Denmark took up arms against Prussia and Austria, has an area of $351\frac{3}{10}$ geographic miles,* or 7,487 English miles; of these, Holstein embraces about 3,500, or about one-twelfth of Ohio; or in other words, it is equal in area to about two-thirds of the Western Reserve. The population is *estimated* at 999,320—of these 424,901 are in Schleswig and 574,419 in Holstein; I say estimated, because the last census was taken in 1862 or 1863, and the regular increase as deduced from former censusses added. In 1845 the population of Holstein was 480,028, and in 1855 it was 523,528.

The inhabitants are JUTES, ANGLES and SAXONS; races or tribes who have remained here among the marshes and ungenial climate from before the foundation of the Roman Empire to the present day. They are very hardy races, not tall in stature, but have great muscular development and powers of endurance. The language of Holstein is "PLATT DEUTSCH," or, as the Holsteiners claim, the *old Saxon* tongue. It frequently occurred to me whilst in Holstein, that *if* it was necessary to understand the Latin and Greek languages in order to understand the English *thoroughly*, why not understand the "*Platt Deutsch*," on which the English is based originally?

The highest point of land in Holstein—and that is in the eastern portion—is about 300 feet above the level of the ocean. The eastern portion is somewhat gently undulating; the western portion is an almost absolute level or flat plain or marsh. In fact the whole of Holstein is a low level plain, and fully two-thirds of it is marshy or marsh lands—especially that portion of it which borders on the Elbe and the North Sea; hence the names of large tracts of land, as "*Dit* marsh," "*Wilster*-marsh," "*Camper* marsh," &c. There is a ridge more or less fertile extending from north to south throughout the two duchies—high and low moors, heaths, stony ground and barren sand wastes characterize this ridge; but it is now nevertheless generally cultivated. On both sides of this ridge are exceedingly fertile lands. The eastern portion produces the largest grain crops; but in the western portion where the same tracts have been pastured for hundreds of successive years—especially in the marshes—such fat cattle as are here produced are nowhere else to be found on the Continent. The most celebrated dairies of the duchies are found partly in Angeln (Schleswig) and partly on the large estates in the eastern portion of Holstein; the best cheese is almost equal to the Holland, and is made in the Wilster marsh. Sheep-breeding is carried on to a considerable extent only in the heath districts and in the marshes; but the *nobler* (finer) races of sheep are kept in small numbers only on the manors of the nobles and in Eiderstedt. Swine-breeding has increased with the export of bacon to England; the English and the half blood races are the most popular. The Hungarian race had been introduced on some manors in Holstein, but was soon abandoned. The best horses (the so-called Ram's heads) come from the Wislter marsh. Goats are not generally kept, but are becoming more popular with the cottagers. Bees are kept almost everywhere in this country, but as a general thing in the old-fashioned straw hive; the more improved and rational system has not yet found any encouragement there.

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* The German or geographic mile is fixed at 15 such miles to *one* degree of latitude; the statute mile of England and America is 69¼ miles to one degree of latitude. To reduce German square miles to English or American square miles, I employ the following formula: 15x15=225 : 69.25x69.25=4795.5525, so are the number of German square miles to the equivalent in English or American.

I have made it a point to obtain all the statistics I could of all the countries visited. I cannot vouch for their reliability from the fact that I believe they are all based on *estimates;* there is no place in all Europe where the statistics are either annually or decennially collected and collated as here in Ohio. The following were the only crop statistics I could obtain, viz.: *Schleswig*—wheat, 200,000 tuns; rye, 700,000 tuns; barley, 600,000 tuns; oats, 1,200,000 tons; peas and beans, 100,000 tons; buckwheat, 180,000 tuns. *Holstein and Lauenburg*—wheat, rye, 800,000 tuns; barley, 650,000 tuns; Oats, 1,900,000 tuns, mostly grown in the marshes; peas and beans, 300,000 tuns, mainly grown in the marshes, as mixed forage; buckwheat, 200,000 tuns, chiefly in the sandy portions of the duchies. Rape is grown on the rich lands in the marshes. Since the breaking out of the potatoe disease, very few comparatively are grown; flax to a very limited extent is grown, but clover is extensively grown. Fruit trees are planted almost everywhere, but as an article of merchandize fruit is raised in the Alsen Aaroe in the Sundewitt district, in the Probster and in the Wilster marsh. The statistícts of live stock, in 1861-2 were as follows: *Schleswig*—horses, 72,333, cattle, 390,001, sheep, 362,219, swine, 87,867. *Holstein*—horses, 77,081, cattle, 290,372, sheep, 165,344, swine, 82,398. Estimating Holstein at 153.6 German square miles; then there are on each square mile 502 horses, 1,890 cattle, 1,076 sheep and 536 hogs or swine. The production of butter in the duchies may be estimated at 26,000,000 pounds in round numbers; of this there is consumed an average of 25 pounds per head of the inhabitants = 22,500,000 pounds, and 3,500,000 pounds are exported.

With a very few exceptions timber is grown only on the east of the ridge; in Holstein there are 91,500 tonne* of woodland. Beech timber is by far the most predominant. Game consists mainly of deer, hares and foxes; stags and red deer are rare; black deer are found in the inclosures on estates only. Of fowls, wild geese, ducks, partridges, snipes and fieldfares are found almost everywhere. Swans are found on the east coast. On the isles of Sylt and Foehr, *teal* are caught in large numbers in the bird traps.

Fishing is not carried on as a business to such an extent as might be expected, although the waters abound in fish; the more recent inventions in fishing are not employed there. The most extensive fisheries are on the Schlei, which in 1862 yielded a net income of about $7,500 (10,000 Prussian thalers). In the bay of Eckernfoerde, 80 fishermen are engaged in this business with 124 boats.

The country is not rich in minerals. There is no coal, but peat is dug and prepared in immense quantities for fuel. *Marl*, so necessary for fertilizing many tracts of land, is found "everywhere:" limestone comes from Schleswig; Segeberg furnishes six to seven thousand tuns of plaster annually; the Oldesloe salines furnish about 7,000 tuns of salt annually. Tile clay is found chiefly on the eastern slope. Iron ore exists on the ridge, but none has yet been worked. In 1862 the imports of the duchies amounted to 19,000,000 Prussian thalers† and the exports to 16,000,000. This excess of 3,000,000 thalers is occasioned by the increasing demand for articles of luxury, and partly too by the fact that Altoona, with upwards of 50,000 inhabitants, the largest city in the duchies, is a free port.

Having given this general outline of Holstein, its inhabitants and products, something should be stated more in detail.

Geologically, Holstein belongs to the Tertiary formation, but its surface is destitute of any considerable rock formation of this period. Almost all the rocks found in it are erratic blocks of granite and gneiss; and notwithstanding the country was settled before the days of Julius Cæsar, yet up to this day no stone quarry has been found in all Holstein. The soil, so far as I had any opportunity of observing it, is a strong loam; in some localities a very strong clay, especially on the east side; in others, sandy. It is well watered with small streams, and in the northern part has many small lakes. It is in the eastern portion where we find the best farming. There is considerable forest here, having an unusual proportion of beach and oak; the fields are very fertile. As a rule the hillocks or elevations are arable, and the intervening depression, called a "valley," is either meadow or pasture. In this eastern portion is where the greatest number of estates owned by the nobility, the crown or government, and the church, are located. These estates vary in size from several hundred to even ten or twenty thousand tonnen; but even in these large estates there is seldom over 1,000 to 2,000 tonnen in a body; the remainder, being in smaller tracts and scattered over a considerable extent of country, is generally leased to dairymen, farmers, or is in small parcels and leased to small farmers. But the area of the principal farms in private hands is from 300 to 700 tonnen. When the crown or church lands are leased to tenants, they are leased either for a term of years, or as hereditary in the family, and are leased for about $6.00 (10 thalers *Reichs münze*) in addition to the local tithes and rates, which amount to fully $3.00 more per tonne, and to these are yet to be added the crown taxes which the tenant must pay.

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* A "*tonne*" is about 1⅓ acres; it is 240 square *ruthen* of 16 feet square each.

‡ The Prussian thaler is about 75 cents.

Here, too, we find the most recent improvements in agriculture, such as underdraining, irrigation, and improved agricultural machines and implements. Here, also, we find what is not found on the continent proper: laborers' houses and farm houses on the estate or farm. Every large farm has cottages for day laborers, sometimes clustered around the residence of the proprietor, but sometimes, also, isolated or scattered over the estate. Most of the large farms here have windmills, tileries, limekilns and distilleries.

The majority of the farms, however, have an area of 50 to 80 tonnen of arable land and a proportionate area of meadow. Then there are many who own the so-called "parcels," which sometimes contain more, sometimes less, than a *hide* of land; there are those, too, who have half or quarter hides only; then "cotters," (*kathners*) who have from 6 to 10 tonne; and landisters, who have from 3 to 4 tonne. Good sized farms—from 50 to 80 tonne—are divided into 8 or 10 tracts, each one of which is surrounded by a hedge, in which a regular system of rotation is conducted.

Before proceeding further with the general description of farms and farming in Holstein, I will give a brief statement of the rotation of crops practiced by Mr. Sigismund John Ree, a native of Holstein, who has traveled extensively in the United States, lived awhile in England, speaks the English language well, as also the German and "*Platt Deutsch.*" I visited his estate, lying near Alt Rahlstedt, beyond Wandsbeck, where myself and family were kindly received, and hospitably and generously entertained. He owns in fee simple 250 tonnen land. The greater part of this land has a very heavy clay subsoil, but the soil itself is an excellent loam, in places inclined to be sandy. There is a tilery on the farm, and he has it all well underdrained. His system of rotation may be called a ten years course, as follows:

First year.—After a field has been in pasture three years, it is plowed down at the time of first stubble, then before winter sets in it is again plowed, but deeper than the first plowing, and is then well harrowed. During the winter, manure is hauled out and spread over it. Early in spring it is shallow plowed; then, two or three weeks later, it is well harrowed, and again plowed deeper than the spring plowing. It is then sown with a mixture of oats, tares, *(vetches)* barley, and sometimes spring rye. This crop is called *meng futter*, (mixed forage) and is cut as soon as the grain begins to set. Mr. Ree argues that by cutting it before the grain is set, or just as it is beginning to set, that the plant food and manurial strength required to form the grain is not extracted from the soil, and that, therefore, the benefits of manuring will be longer apparent in the subsequent crops. This "meng futter" crop is cured and carted home for winter feed. The stubble is turned down; later in the season, harrowed and again plowed, and in September sown in winter rye. A portion of this field is reserved, in which potatoes and turnips are planted. In winter time the meng futter is cut up on a straw cutter, mixed with sliced turnips, and fed to the cows.

Second year.—Reap the rye when ripe; turn down the stubble, and, before winter sets in, plow it *ten* inches deep; put on no manure, but let the field be bare during the winter.

Third year.—Plow it well and harrow with the Swedish harrow. Sow in oats, timothy and clover, (mixed.) Cut the oats when ripe in September.

Fourth year.—Cut the clover and timothy twice for hay—once when the clover is first in bloom, and then again as aftermath.

Fifth year.—Cut the clover for greensoiling cattle.

Sixth year.—Turn in cattle to pasture, and then fallow as in the first year.

This farm is a dairy farm, and Mr. Ree does not believe that grain growing (wheat for market) is at all profitable; therefore he grows no wheat. It is cheaper to purchase the American flour in Hamburg, than to grow wheat for bread. The household bread is rye bread, or black bread, and wheat bread is only occasionally seen on the table.

He keeps eighty milch cows of the Angle breed or race; he has three of the Jutland race, but does not like them as well as the Angles. These cows are kept in the cow house all the time, except during the months of June and July they are in the pasture fields one half of each day. In winter they are fed with the "meng futter" and turnips, but they are green-soiled all the remainder of the year. They are milked at 3 o'clock A. M. and at 3 P. M. The milk is taken to Hamburg in large wooden vessels, hung on the sides of a frame work which takes the place of the bed or body of the wagon; the wagon wheels are high; the wagon is very narrow, but long coupled; and the vessels containing milk being slung on the sides and *under* the wagon, the milk is not *churned* as it would be if it were in vessels resting on their bottom.

He has twelve head of horses, mostly heavy Danish horses, for farm work, but has a few thoroughbred Suffolks. He does not keep many swine, but has a few choice white Suffolks and white Berkshires.

He never purchases a cow in milch. He told me that if a man has a milch cow for sale, that there must be something wrong about her, and that no man would offer a really good milch cow for sale; that if compelled to raise money, any judicious person would part with almost anything else on the farm, rather than with a *good* milch cow; and furthermore, that in many years' experience, he has never seen a milch cow offered for sale that did not have some fault. But he purchases heifers in calf, and then he *trains* them himself, and is then willing to assume the responsibility of their having faults. As soon as the cows fail in milk on account of their age, they are sold. He keeps a Breitenburgher bull, a splendid animal, but does not rear any cattle. The calves are sold either to adjoining farmers or to the butcher. He says it don't pay, to rear calves on a dairy farm; "and in fact," said he, "I don't think it pays to rear calves anywhere—that is, I don't think any person could make any money by making it his entire business. For me, I know it is much cheaper to go to Angleland (just beyond Kiel) and purchase heifers in calf."

During the international exhibition in Hamburg, in 1863, he purchased an American milking machine and a rotary harrow, but he soon threw them aside. I found this American milking machine in many places throughout Germany, but it nowhere gave satisfaction; the gutta-percha tubes which embrace the teats soon become rigid and break, and the machine is then entirely useless; besides, it is liable to get out of repair in other respects.

Mr. Ree has thrown aside almost all the old Holstein farm implements, and has adopted the use of British and American ones in their stead. For instance, he used the Howard plow of England; must import every plow and every portion of the plow from England; yet he claims that it "pays well" to do so, in the dispatch and superior performance of the English over the Holstein plow. But there is great difficulty in getting the farm laborers to use the "foreign" implements. He related to me that when he sent the first Howard plow to the field with the workmen, they declared that they could do nothing with the *crazy* English tool; but as he had used them in England with good results, he felt sure they must be good in Holstein. So he took hold of the plow himself, and it did *splendid* work. This touched the pride of the Holstein laborers, and they were deeply mortified to find the *master* a better plowman than they were, who had been plowmen all their lives. They took the plow in hand again, but contrived, through sheer intent, to break it; but as he not only had several of these plows, but had also many of the parts in duplicate for each plow, it was soon mended. When the workmen found that he insisted on using the Howard, and would not let them go back to their old and awkward Holsteiners, they succumbed, and now the plowing on his farm is the pride and the marvel of the whole neighborhood—but not a single farmer will follow his example.

I mentioned that the farm is well underdrained. He has a tilery on the farm, and manufactures not only his own tile, but for his neighbors. When he commenced underdraining, his neighbors all laughed at him; and when they saw abundant harvests as the result of it, they were fain to attribute the results to other causes—to manuring, to deeper plowing, careful culture, &c.; but when his crops were heavy year after year, and those of his neighbors did not equal them with all their manuring, deep plowing, and careful culture, they concluded that underdraining in wet seasons might have a good effect, but that it *would not pay.* He therefore made a present of enough tile to underdrain one field to his neighbor, and gave him detailed instructions about putting them down, &c. Mr. Ree's drains are from 30 inches to 3 feet deep; the neighbor put none deeper than 20 inches, some not over 12 or 15; the consequence was that they were frozen up till midsummer, and of course did more damage than good; and thus was underdraining checked in that immediate neighborhood.

Every field and roadside was bounded by a hedge. These he considered useless, and has removed hedges enough to recover the use of twenty acres of land which was occupied by them. He assured me that he had really gained *forty* acres, for the hedges occupied twenty acres themselves, and then they shaded twenty acres more, so as to make them unproductive. Now, where land is worth $125 per acre, the gain of forty acres is equal to a gain of $5,000, aside from the annual product of the forty acres.

He never purchases barn-yard manure. All that is made on the premises is very carefully preserved, and that produced by eighty cows and twelve horses, properly managed, is all that is required. But all his neigbors purchase manure, and are careless with what they produce. He tried super-phosphate on rye with the most flattering results. He has a large tank for the reception of liquid manure, and believes it to be very efficacious.

He employs nine men constantly, during the entire year. In harvesting and haying he pays the men one mark (about 30 cents) a day; the women from one-fourth to one-third of this amount; and employs boys and women to weed and pick stones off the fields.

I have given this extended description of this farm because it is regarded as being *the* model farm of southeastern Holstein, and Mr. Ree is regarded as the most successful farmer in the Duchy. He values his farm, including stock and implements, at $60,000.

The Holsteiners are not as much in favor of such great division of lands, or what is the same, they are not as favorably impressed with very small tracts of land as they appear to be in Hannover, Brunswick, Hessia and Wurtemburg. Although there are many in Holstein who own no more than four or five acres, yet there are very few who think of farming with half an acre, or half a dozen isolated tracts of a quarter of an acre in each one, as is the case in the countries just mentioned. Notwithstanding the fact that more may be produced from a small tract than from a large one, in proportion to the area cultivated, because, as a rule, the small tract is always more carefully and thoroughly cultivated than the large one, yet the necessary force, implements and arrangements required to cultivate a large tract are less, relatively, than that of a small one. Mr. F. Trummer, in Holstein, cites the following case in point:

"There was a very detailed and correct set of books conducted for a series of years, in which every item of income and expenditure were carefully noted, of two adjoining estates, in which the soil, lay of the land, the intelligence of the proprietors, and the system of husbandry, were as much alike as it is possible to find. The one farm consisted of 100 tonnen, and the other of 1500. The proportion of the net income from products sold was as 1 to $17\frac{11}{16}$. The labor required on the small farm was that of 3 families and 7 day-laborers, whilst that of the large one required only 51 families and 42 day-laborers."

Thus the large farm gained an excess of an annual average of nearly $2\frac{3}{4}$ years' product of the small farm over and above a normal proportion; whilst the number of day laborers for the large farm was only two-fifths of the proportion required for the small one, whilst the excess of a normal proportion of families on the large farm was two-fifteenths only.

The Duchy of Holstein averages *four* acres to each individual. The rural population is very unequally distributed. In the north-eastern portion of Holstein is a province called Probstei, in which the population is very dense, and where there is a great excess of laborers. These Probstei laborers are cheerfully employed everywhere, when they see proper to leave their province in search of labor. They are very industrious and intelligent, and are employed in ditching, underdraining, marling, harvesting and preparing rape seed, threshing, thatching, &c. Many will not leave home, but employ their time in making straw hats, mats, linens, and other such like industrial pursuits. The land owners are all in comfortable circumstances, have a rational system of agriculture, keep their land in good heart, and the farm seeds from that region are famed all over Germany.

Cattle raising and dairying are not much in favor in Probstei. The majority of farmers here follow out a twelve year system of rotation; or, in other words, have the farm divided into twelve parcels or tracts. After it has been pastured several years, then it is summer fallowed and plowed three to four times; then 2d year in rye; 3d year, in barley; 4th "meng futter;" 5th, rape; 6th, rye with white clover and grasses; 7th, pasture; 8th, pasture and fallow; 9th, wheat; 10th, peas, vetches, flax and potatoes; 11th, oats and red clover; 12th, clover for hay; then pasture again as at first. When it is determined to put an entire tract in potatoes, they follow the wheat crop, and are succeeded by a crop of barley. But there are many departures from this system of rotation, yet when it is followed, it is found to be the best. The soil is plowed very deep; usually three horses are attached to the plow.

In the central or more sandy portions of Holstein, there appears to be no regular system of farming; rye, buckwheat and oats are grown as suits the convenience or notion of the farmers; there are sometimes five successive crops of rye taken from the same field, and then it is put into pasture for a series of years.

The entire south and west coasts of Schleswig and Holstein consists of marshes. They are from five to fifteen miles wide, and have been gained from the ocean and Elbe, much in the same manner that the famous fens of Lincolnshire, in England, have been secured. Embankments have been thrown up during the *ebb*, or during a period of low tides, so that when the waters returned the embankment was not disturbed. In course of time these embankments were increased by the ocean itself, depositing sand, marine plants, &c., on them. When the soil thus gained had become solid and in arable condition, then another embankment was made, and so on, until now an average of seven and a half miles in width has been gained from the ocean, and constitutes some of the most productive portions of Holstein. Root and grain crops are not unfrequently grown for a period of forty to fifty years before it is pastured. Clover forms the staple pasture, and after having been clovered for three or four years, another forty or fifty years rotation is again pursued.

There is a kind of *labor market* at WESSELBUREN, in the Ditmasrch district, and is conducted somewhat as follows: All the unemployed laborers, for many miles round about, congregate in the village on Sunday, and attend the service in the several churches there. The benediction is scarcely pronounced when all, both those seeking employment and those seeking laborers, rush to the market place and engage laborers for a week, or a longer period of time. Even the unemployed *Probsteiers* seek this labor market to obtain employment. The system has been practiced many years, and saves both the employer and employed a great deal of time.

The native cattle of Holstein are the Angle cattle, which are far more numerous than any other kind or race. They are small animals, with fine bones, short-legged, rather than otherwise, a very fine, small head and delicately formed neck. The predominating color is red or brown, but there are many dun, black or spotted ones. According to the amount of food consumed, this race give a more abundant supply of milk than any other in the duchies. It is a very highly esteemed race—is much sought after for its milking qualities and kindliness in taking on flesh. The flesh is very fine, tender and juicy. On account of the great demand for stock of this race, cattle dealers have not unfrequently gone in Jutland and other points, and made purchases which they represented as being genuine Angles, but in recent years a law has been passed that every breeder of Angle stock must brand the calves with the letters A. R. (*Angle Race,)* in order to prevent imposition.

In these marshes are found a race of cattle much larger and heavier than the Angles, larger boned, and of a dark, reddish brown, and known as the Marsh race. This race seems to be adapted to the marshes, but does not do well on the drier and higher uplands. Upon the rich pastures of the marshes, for a time after calving, the best cows will give from forty-eight to sixty-four pounds—from six to eight gallons of milk daily. But the milk is not near so rich as that of the Angles—in fact I was shown a statement, apparently well authenticated, to the effect that the milk of the Marsh race contained no more than two per cent. of cream, whilst that of the Angle race contained sixteen per cent. One thing is very certain, namely: The butter of the Marsh race is not near so sweet or "nutty" as that of the Angle race.

In Schleswig, rather than in Holstein, are found many of the Jutland race of cattle. These have very fine bones, and are long in proportion to their height, and are, as a rule, short-legged. The prevailing color is gray, black, or gray and black mixed with white, but very rarely red or brown. This race is more highly esteemed for its early maturity and readiness to fatten than for its milking qualities.

These marshes are famous places for pasturing horses, and many make this an exclusive business. The horses thrive well on the pastures, and many overworked, as well as colts, are purchased by farmers, turned into pastures until they are in good condition, and then taken to the horse market.

In the marshes are found also sheep known as the *Marsh sheep.* Those that I saw I should pronounce decidedly poor stock for any person to invest in; they are very leggy, long necks, ill-formed body and head. But I have been assured that they are in great demand, and that flocks of them have been taken even to southern Russia. They are undoubtedly very hardy, for they are left to shift for themselves summer and winter, in all kinds of weather—except at lambing time, the ewes and lambs are housed. They are said to produce a very heavy fleece of wool of about the Lincolnshire or Leicester quality. This wool is well known, all over Germany, as the "EIDERSTEDTISCHE" wool, and for certain fabrics is in great demand.

In some portions of Holstein the pastures are plowed down every three or four years, but in the clay lands both the meadows and pastures are undisturbed by the plow until moss makes its appearance in them, then they are at once plowed down. In the marshes the cattle are grazed on the pastures, not so much for the purpose of avoiding the labor of green-soiling as for the purpose of compacting the soil. Buckwheat, flax, potatoes, hemp and mustard do not do well on these marshes. Mr. Geo. Fred. Dittman, a very accurate observer, as well as a thorough agriculturist states that the average product of these marshes are: Rape, forty to forty-four bushels per acre; wheat, forty-four to forty-eight bushels; fall barley, eighty to eighty-eight bushels; spring barley, fifty-six to sixty bushels; beans, forty to forty-four bushels; oats, one hundred and twenty to one hundred and thirty bushels. All the cereals, together with rape and beans, are harvested with sickles; although reapers and mowers are being introduced in several localities.

Immediately southeast of Hamburg is a marsh occupied by a colony of Hollanders, who retain the peculiar garb of by-gone centuries, calling themselves VIERLANDER; (that is *four landers*—probably from being situated on the junction of four countries,) they devote their entire attention to growing fruits, flowers and vegetables, and enjoy the reputation of producing the finest qualities of these in northern Europe. They isolate themselves as much from the world in general, and retain their peculiar habits, manners, customs and speech, as the Quakers do in this country. The price of farming lands in Holstein range from $80 to $350 per acre, according to quality and location.

The Agricultural College is at Copenhagen, in Denmark, proper, and exists as a portion of the university course of education. Every student entering this college must have had three years actual experience on the farm itself, and the course of the college embraces both the science and practice of agriculture.

KING OF HANOVER'S STUD.

Across the Elbe from Hamburg is the town of Harburg, from which a railway leads to CELLE, the seat of the Royal Hannoverian Stud. The trip from Harburg to Celle by rail, affords one many interesting sights. The village of Pardewieck was a great city when Hamburg was merely a lot of fishermen's huts, but Henry the Lion-hearted destroyed the city in 1189, and it has never since attained its former size or glory. Between Luneberg and Celle are the famous Luneberg heaths or wastes. The country is more undulating, and in the lower places one may see what industry and cultivation can make even out of a heath soil; on the elevations were pine forests grown by art, and the lower and moist valley many varieties of deciduous trees are cultivated. The meadows are irrigated, and, I was informed, produced good crops; in the fields, crops of potatoes, rye, peas, turnips, buckwheat and lupines are grown—clover and other forage plants do not succeed well. Near by Celle, fruit trees are extensively grown, and, I am told, do very well. On the pastures large flocks of "Heides-chnuckers" (a variety of sheep) were to be seen with herds of cattle, that represented the black and red spotted lighter breeds of the low districts.

Arrived at Celle I went through the six large stables containing the Royal Stud; the grooms and servants were polite, and all were tall, well-built, muscular men. The stables are well built, and kept exceedingly clean. The horses stand partly in single boxes, partly in separate stalls; every box or stall has a slate attached upon which the name, age, pedigree and performance of the animal are written. The stalls are calculated to accommodate 228 horses; at present there are 224 stallions there, including the young and not fully developed ones.

Twenty-one thoroughbred horses, foaled in England, were shown me; among these was a twelve-year old black stallion, "*Saunterer*," that had won "glorious triumphs" on the turf, and was purchased for this stud at an enormous price. It was difficult to decide which of the numerous "*noble*" and beautiful horses was the finest and most excellent; for myself, acting upon the principle that a child is pleased without being able to assign the reason, I liked best of all a fifteen-year old chesnut stallion, "Epaminondas," bred by Mr. Ford, of England, a get of Epirus out of a mare by Plenipotentiary. He ran in England twenty-six times, and won three times. I was shown seven thoroughbred stallions foaled in Germany; they were powerfully built and were beautifully formed—especially "*Hornet*" and "*Tambour*." I was shown eighteen Hannoverian saddle-horses, mostly half and three-quarter bloods, among which was the fifteen-year old half-blood black stallion "MONTENEGRO," a six-year old black stallion, "Destedt," got by Montenegro, a six-year old bay stallion, "*Echo*," the get of Epaminondas, and others, descendants of the horses first mentioned. In other stalls were Mecklenberg, Prussian, and English saddle-stallions. An old black stallion, nearly twenty years old, "Cottager," must have been a famous horse in his prime, and I was told was very generally admired. The carriage-horses were of Hannoverian, Mecklenburgian, Prussian and English parentage, very well built, and excellent and beautiful forms. In the last stable I visited were the draught horses; among which were the Pommeranian stallion "BULLDOG," and eight English stallions; among the latter, a six-year old roan stallion, "BROWN HEAD," and the seventeen-year old sorrell stallon "Prickwillow," were the most prominent. The latter is a "Norfolk," and is the only stallion of the entire lot of which I could obtain an engraving or likeness. Although I purchased lithographic prints of twenty-four stallions of this stud, the animals whose portraits I purchased were all dead except Prickwillow.

This stud was commenced in 1735, under the superintendence of a forester, named Brown. At first Holstein stallions were purchased and distributed to six different stations; during that winter eight of these stallions were kept at Celle. The fee for service up to 1838 was one bushel oats, and when the colt was foaled, one thaler in money was to be paid to the establishment.

In 1748 Stegemann took charge of the stud as superintendent; at that time it contained 40 stallions, and the average number of stallions did not exceed 50 until 1770, in which year they begat 1,541 colts. The seven years' war not only checked all agricultural developments and progress, but also checked the operation of the Royal Stud. In 1764–5 it possessed 1 English stallion, 13 Danish, 31 Holstein, 3 Prussian, 2 Neapolitan and 1 Spanish, distributed in 32 stations. During the twenty years from 1765 to 1785, and again from 1814 to 1839, stallions from the stud were distributed to all important points throughout the kingdom.

During the French invasion in Hannover, in 1803, the Superintendent, KOCH, fled with 93 stallions into Mecklenburg, in order to prevent them from falling into the hands of the French. Not more than thirty of these stallions ever found their way back to Celle, and during the Napoleonic wars, the stud was entirely suspended. In 1814 it was re-established by the purchase of new horses, and in 1818 it had 110 stallions. In 1839 the distribution of stallions throughout the country from the royal stud was discontinued. King ERNEST AUGUSTUS donated 26 of them to the National Stud, and ordained that in future there should exist but one Royal Stud at Celle, and which might be increased to 210 or 12 horses. Since that time the National Stud has been in the charge of Mr. VON SPORCKEN, the present efficient Superintendent. At present it contains—

A.	Thoroughbreds purchased in England	31	
	" foaled in Germany	8	
			— 39
B.	*Saddle, Hunting and Army Horses—*		
	Hannoverian Stallions	51	
	Mecklenburger "	42	
	Prussian "	13	
	English "	4	
			— 113
C.	*Carriage Horses—*		
	Hannoverian Stallions	8	
	Mecklenburger "	27	
	Prussian "	10	
	English "	11	
			— 56

D. *Draught Horses*—

Hannoverian Stallions	1	
Prussian "	1	
English "	1	
	—	3
		224

Of these, 63 were foaled in Hannover, 69 in Mecklenberg, 29 in Prussia, mostly in Pommerania, and 63 English stallions. During the ten years from 1853 to 1863, an average of 12,319 mares were served annually by the stallions of the National Stud; during the year 1863, 13,051 mares were served, of which 12,537 mares were from Hannover, and 514 from neighboring places, as Hamburg, Bremen, Prussia, Holstein, Oldenburg, Brunswick, Hesse, &c., &c. According to these figures, each stallion served an average of 61 mares. The fee for common stallions is *one* Thaler, but for the half-blooded up to the thoroughbred stallions, the fee is 2, 3, 4 and 5 Thalers. Beside this fee, a fee of 3 Thalers is to be paid for every colt foaled regardless of the quality or blood of the horse. During the ten years from 1851 to 1861, the colts foaled alive were nearly 57 per cent of the mares covered.

When in Prussia I took considerable pains to collect statistics of the "foaling," in order to ascertain the relative proportion of horse colts and mare colts, as well as to ascertain the per centage of colts foaled from the entire number of mares served, and I confess I was somewhat surprised at the results. Here in Ohio we have no data whatever upon this subject, and I think if every keeper of a stallion were, by law, obliged to make returns somewhat similar to those of Hannover and Prussia, that much might be learned from them, and a better system of breeding introduced. The results of my investigations are :

In Hannover—56.8 colts to every 100 mares served, average of ten years.
In Austria—54.4 " " " " " twenty years.
In Prussia—53.6 " " " " " five years.
In England—62.5 " " " " in 1865 *
In France—60. " " " " †

Or an average of about 55 per cent. for these three Germanic kingdoms. Evidently some natural law, relative to reproduction, is violated, and it would certainly be well to ascertain what is thus violated.

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* Bell's life in London.	Colts	711
	Fillies	730
	Barren Mares	536
	Slipped Foal	134
	Died before foaling	60
	Not covered previous year	71
	Covered by half-bred horses	24
	Cast away before foaling	36
	Total return of brood mares for 1865	2302

† De L'Espece Chevaline in France, 1850.

The stud at Celle is managed by a director, commissioners of the royal stud, a receiver and an accountant. The employees are a horse-breaker and a veterinary surgeon. The servants are—a "saddle-servant" or overseer of other servants, two forage masters, one steward of the magazine, one farrier, and sixty-four servants in livery; these latter are divided into four classes, according to their salaries. Besides these there are some sixty servants of a lower grade, who "work for their board," and are dismissed at the close of the season.

The stud is under the immediate control of the Minister of the Interior, and has an annual appropriation of $31,350 from the Royal Treasury. The average expense for a series of years, with an average of 224 stallions, amounted to $66,000; the deficit is made up by the service and foal fee. The expense of each stallion thus appears to be about $300 per annum, and this includes the purchase of new stallions; or, deducting the amount of purchase money, there remains about $220 as the annual expense of each stallion.

CHAPTER II.

From Hamburg I went to Berlin, in Prussia, passing through the province of Mecklenburg. Making Berlin my head quarters for nearly a month, I traveled over a portion of Mecklenburg, Mark Brandenburg, Pomerania and Posen. Shortly after my arrival at Berlin, the International Fair at Stettin took place, and as this Fair was one of the objects of my visit to Europe, I will describe it before touching on the agriculture of Prussia.

THE INTERNATIONAL FAIR AT STETTIN.

Stettin is the capital of the province of Pommerania, and situated on the river Oder, eighteen miles (German) north of Berlin, or about eighty-three English miles. So long as Pommerania remained a dukedom, Stettin was the residence of the reigning duke and the royal family as well as of the nobility of the province. The last reigning grand-duke was Bogislaw XIV, who was permitted to rule until his death in 1673; but in the treaty of peace, in Westphalia in 1648, Pommerania was ceded to Sweden, and in the treaty at Stockholm, in 1720, it was attached to Prussia. Portions of the city evidently are some 700 or 800 years old; for the Saint Peter and Paul church was founded in 1124 by order of Bishop Otto, of Bamberg, in 1124. It was somewhat damaged by the siege of 1677, more of it was destroyed by the war of 1806, but in 1816-'17 it was fully restored in all its former details. The recent and present Kings of Prussia, Frederick William IV and William I, have bestowed upon it several very beautiful images and paintings on glass. The city does not occupy as much territory as Columbus, and is inclosed by a stout brick wall, the several gates of which, especially the one opening on the Berlin road, are splendid monuments of ornamental masonry. It contains about 70,000 inhabitants, 1,000 Catholics, and a military garrison of 5,944 soldiers. It is one of the most important cities of the Zollverein. The Oder river, which is very narrow here, about like the Cuyahoga at Cleveland, or Schuylkill at Philadelphia, is very deep, and admits vessels drawing 16 and 17 feet of water. There is an immense amount of shipping done here, consisting chiefly of grain, wood, spirits, and zinc as articles of export, and dye-woods, fish-oil, and groceries as imports.

Two hundred sea-going vessels are owned in this place, and thousands from other lands are here in port every year. The city itself is very irregularly laid out. In the old part of the city there are scarcely any parallel streets, but they are located at every other possible angle to each other, except at right angles. The streets are narrow, well bouldered, and kept clean. The houses are the usual five and six story houses of northern Germany, in which several families reside in each story. The exterior of the buildings are stuccoed with a cement which here is very durable. I was assured that one stuccoing properly put on at first would last fully fifty years. This stuccoing gives the houses the appearance of having been built of a light-colored or grayish stone, and really presents a much better appearance than our glaring red brick walls in the States. The country around about is a low plain, especially on the right bank of the Oder, which in time of freshets is overflowed for miles, and can be used for no other purpose (agriculturally) than as water meadows, or as meadows in which wild or sour grasses are grown. The shore and country on the left bank are much more elevated, and a portion of the *new* town or portion of the city is fully 150 feet above the level of the river, and a little north of the Berlin gate is a hill 250 feet high. From this hill one of the grandest panoramic views may be obtained of many miles of the surrounding country.

There were really two exhibitions here, the one an "industrial exhibition," under the auspices of the Polytechnic Society of Stettin and patronage of the crown-prince, and the other an "agricultural exhibition," consisting of an exhibition of live stock, agricultural machinery, artificial manures, and everything else connected with agriculture, horticulture, &c. Party lines were tolerably broadly drawn between the polytechnists and agriculturists. Before the reader can fully appreciate the party spirit, it will be well to explain the relative position occupied by the polytechnist as well as that of the agriculturist.

In the first place, the agriculturist (*landwirth* or *gutsbezitzer*) is the owner of a large estate, the average of which estates in the provinces of Mecklenburg, Mark Brandenburg, Pomerania, Prussia, Poses and Silesia, average about 2,000 *morgens*, or 1,600 acres. This *landwirth* is in the line of nobility; if not *already* a nobleman, he may purchase a patent of nobility. The polytechnist cannot make any such purchase. The landwirth is ex-officio a member of the village council, and may be elected to the national house of representatives. The polytechnist holds no office whatever; he cannot by law *change* his occupation. The landwirth may commence distilling, or any other kind of polytechnic establishment he sees proper on his estate by employing competent practical men to conduct the business for him. In a word, the agriculturist or landwirth or gutsbesitzer (for they are all convertible synonymous terms) is a privileged man, whilst the polytechnist nowhere (in this country) can aspire to be more than a "*greasy mechanic*," as the confederates said of the Yankees. Hence party spirit runs very high, and hence the contest as to which should have the *best* exhibition. The polytechnists call themselves "democrats," and denounce the agriculturists as "aristocrats." There is no equivalent for our term "farmer." Those who do the toiling and drudgery on the farm are called "*day laborers*," even though they have been hired for a term of years; others are shepherds, cowherds, &c., &c. The agriculturist of the modern school is a highly educated gentleman, courteous, polite in his manners, very companionable, indeed; many of them graduates of agricultural colleges. All that I met were deeply interested in agricultural education, experimental farms, &c.; in fact, any of these graduates, I think, are eminently capable of taking hold of an agricultural college and running it with proper assistance. I know for myself that I would not hesitate a moment to vote for any one of them to be president of our Ohio Agricultural College. There are those who own 2, 3, 4, 5, 6, 7 and 8 acres, but they take no part in public life; are kept close at work as a matter of necessity to make a living on the small tract.

The crown-prince (Victoria's son-in-law) is regarded as being liberal in his views, favorably disposed towards America and Americans; was solicited by the polytechnists to extend his patronage to their exhibition, which opened on the 12th of May, and in accordance with their request he was present and "opened" the exhibition. This fact gave this exhibition character and importance in the eyes of the "masses," and the halls were daily densely crowded with admiring and astonished visitors.

The northern provinces of the kingdom of Prussia, such as Mecklenburg,* Pomerania, Mark Brandenburg, and Lower Silesia, have long since been famous as wool-growing provinces, as well as for the healthfulness, purity of blood, and the reliability of their *breeding* sheep. The International Fair at Hamburg, in 1863, gave a new impetus to sheep breeding throughout these provinces, and in the autumn, or rather at the autumn meeting of the northern Prussian agricultural societies in 1864, it was determined to have an exhibition of sheep at Stettin in May, 1865. The object of the exhibition primarily was to bring not only the sheep-breeders of these provinces together, but to have the *sheep* from the various "*stock*" establishments side by side to compare, so as to be enabled to compare the *living animals* as well as their products. But fearing that an exhibition of sheep alone, or independent and isolated from any other kind of agricultural interest, would not prove to be very attractive to the public generally, nor would be very successful financially, it was therefore resolved to unite with it a "live stock" exhibition in the general sense of the term, together with an exhibition of agricultural implements. Yet, as the primary or original object of the exhibition was for the benefit of the sheep interest, the time fixed for holding it was at a period which, in ordinary years, would be before "shearing time." But the year 1865 has thus far been an extraordinary year so far as meteorology is concerned, for in less than a week the transition was made, so far as the *temperature* was concerned, from winter almost to midsummer; and it would have been sufficiently warm to have sheared every sheep by the first of May; many of them were really suffering from the heat under the dense and valuable winter suit. The societies further argued that, as Stettin was practically a seaport town, and vessels arriving and departing daily for Holland, France, England, Sweden, Russia, &c,, if the exhibition were dubbed international, and these countries invited to exhibit and compete for premiums, full and absolute success would be guaranteed beyond a peradventure.

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* Mecklenburg is not a part of Prussia, yet in all social movements is more or less connected with it.

This, then, is in brief the history of the location and organization of the "*Agricultural Fair*," or exhibition, in or near the capital (Stettin) of Pomerania—a city which boasts a population of upwards of seventy thousand inhabitants, situated in the midst of an agricultural region, and whose history dates back to the 12th century. The agricultural exhibition commenced on the 16th of May, 1865. On the morning of that day the President of the Provincial Agricultural Society, (Mr. Von Hagen) accompanied by a number of civil and military officials, proceeded to the extreme end of the large hall for exhibiters, and in a short and very happy speech declared the exhibition open. The attendance was very large throughout, but there were very few Americans here; the majority of Americans present were the agents of the several "sewing machines." Our consul, C. J. Sundell, Esq., has been indefatigable in his exertions to induce Americans to exhibit, and is sparing no pains to render the stay of Americans pleasant, agreeable and comfortable. Certainly no one could have done more than he did and is doing daily to engender the kindliest feeling and promote commercial intercourse between the Prussian and United States governments.

The number of articles on exhibition is very fair, and the quality of most very excellent.

CATTLE.

The display of cattle was excellent, and to us (Americans) one of great interest. There were three hundred and eighty-three head of cattle on exhibition, embracing many, if not a majority, of the most popular European breeds. These were divided as follows:

Milk breeds, (heavy)	232
Milk breeds, (light)	49
Beef breeds, (heavy)	35
Beef breeds, (light)	6
Work oxen, (yokes)	13
Fat cattle, (heavy)	28
Fat cattle, (light)	1
Miscellaneous, for exhibition only	19

By comparing the number of entries of horses and cattle it will be seen that they are nearly equal. In the United States, as a general thing, there are about three times as many horses on exhibition as cattle. A rational inference from this comparison of entries is, that we in the United States pay a great deal more attention to horses than we do to cattle, as compared with Prussia—or, what is the same thing, in other words, Prussia pays more attention to cattle than to horses, as compared with us; and if the manifestation of interest on the part of the visitors at the exhibition is any exponent of the real interest manifested by the country, then most assuredly was the interest in favor of cattle, rather than horses, decidedly evident. It is a maxim with the Prussian farmer that an abundance of barn-yard manure is essential to successful agriculture, and the exhibition demonstrates that he practices in accordance with the proverb. Milk, butter, and cheese are in much greater demand here than beef; all well-read persons of the United States are aware that the Germans, as a people, consume comparatively very little animal food; in private families, with rare exceptions indeed, meat is on the table once a day only at most; but as a general thing not more than once or twice a week. There were only forty-one brood beef cattle, while there were two hundred and eighty-one brood milk animals. I took considerable pains to make a complete table of the number of each race of cattle on exhibition under the several heads under which they were classified and entered:

	Milk.		Beef.		Work oxen.	Fat cattle.
	Heavy.	Light.	Heavy.	Light.		
Holland	125	4			2	
East Friesian	33	6				
Short-horn	4		28	1		2
Montafauner, (Schwyzer)	6					
Simmerthaler	5					
Sarlabot	1					
Breitenburger	9	1				
Wilster Marsh	9					
Friesian Marsh	7					
Friesian Oldenburg		2				
Sarlabot-Dessau	1					
Schwatzower	1					
Tonder	1	4				
Werder	1					
Short-horn Breitenburger	1					
Norfolk, (Polled)	2					
Oldenburger	4	1				1
Ayrshire		6				
Pomeranian		2			4	
Angle		6				
Old Boyener		2				
Allgauer		6				
Jersey		1				
Angus		4				
Short-horn, Friesland			2			
Short-horn, Ayrshire			2			
Suffolk				2		
Devon				2		
Bohemian					16	4
Bavarian					4	1
Voigtland						6
Oldenburg-Breitenburg						1
East Friesland Marsh						1
	210	45	32	5	26	16

To describe each one of these several races on exhibition would simply be to write the history of horned cattle in Europe, which, to do the subject and the animals justice, would require a large volume for text and an engraving for a type of each breed. I am glad to learn (by way of parenthesis) that the services of the most competent artist in all Prussia have been secured to produce a volume or rather an album of photographs of all these breeds on exhibition.

But a brief description of the more prominent of these races may not be inappropriate.

It is a very common practice to speak of "HOLLAND CATTLE," as though they were as distinct a breed as the Shorthorn or Devon breed; and I must confess that for a time I was misled by this generic term. In Holland there are several breeds of cattle, almost all of which owe their origin to the Holland *proper* breed, and it was the manifest disparity in the several animals shown me as Hollanders that led me to make a closer examination of the matter. The Oldenburgers, West Friesian, East Friesian, Groningen, and Beemster, are all Holland breeds, and I am assured may be traced back to one original breed, but by culture and care, careful selection in breeding and management, together with the influence of climate, soil and food, these several distinct breeds have been produced.

The *generic* type, so to speak, (because a *positive* definition of the terms genera, species, race, breeds, types and families, so far as natural history in general is concerned, has not yet been settled; and so far as cattle breeding is concerned, any one of these terms is about as comprehensive and admissable as another;) of the Holland cattle, is that of a marsh or lowland race, and has spread itself, from Holland as a centre, over the Netherlands proper, Flanders, Normandy, Oldenburg and Denmark.*

The most celebrated of the Holland cattle are the Friesians, which are regarded as the original stock of all, and next to these are the Groningen breed. They belong to what may with propriety be called the "*heavy*" breeds, and are remarkable for their very fine bones, fine and mellow hide, and peculiar coloring. The most in popular favor are the white, with red, grey, blue-grey, or black spots. Friesian cows are found in the neighborhood of Utrecht, which measure 4 feet 8 inches in hight, 6 feet 9 inches in length, and 7 feet 8 inches in girth—indicating a live weight of fifteen hundred weight.† The head is long, rather narrow, with fine and light bones, but has rather a broad or wide mouth; the horns are short and fine, curving inward and downward; the neck is long and fine, somewhat curved downward on the top; the brisket well set, which is always characteristic of the lowland races. The withers and the back are broad and as nearly level as the Shorthorn, as well as the peculiarly broad and projecting hips; the tail well set, long and fine; the chest broad and deep, and in good proportion to the belly. The limbs are fine, rather longer than in the Shorthorn, but equally fine; the bag in the cows well developed.

Holland farmers, who have good pasturage and take proper care of their stock, obtain from well bred Friesian cows an average of 21 quarts of milk per diem, and in fresh milch cows 26 quarts; although, in some extraordinary cases, as high as 42 quarts per diem has been obtained.* Professor Hengereld‡ says that the milking qualities of the Holland cattle are rather declining than otherwise; and that the statements of

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* Authority: Dr. George May, Veterinary Professor in the Bavarian Agricultural College at Weyenstephan, near Munich.

† The hundred weight of the Zollverein is 110 pounds.

‡ "Over het Rundee," Haarlem, 1858.

Ulkens, Weckherlin and Villeroy, namely: that the cows yielded an annual average of 3,168 quarts is now, unfortunately, no longer realized, and that the highest average now obtained does not exceed 3,000 quarts per cow per annum. Fifty-three quarts of this milk will yield eleven pounds of fine rich cheese, and from the milk from which this cheese has been separated, twenty-one quarts will yield two and one-fifth pounds of second quality soft butter.

The fattening qualities are satisfactory to the dealers, and the flesh of the fat cattle of this race or breed is very fine. As work cattle, they are not held in very high estimation.

The Oldenburghers do not differ materially from their progenitors, the Friesian or Holland race. They are sometimes called the East Friesians, because they occur in the Hannoverian Friesland. They are called Bremen cattle in the vicinity of Bremen, and they abound on the banks of the Weser and Ems. The most important points in which it differs from the original Friesian race, is that the animals are more rounded, plump, and shorter in the body and legs. They are used to a considerable extent as work cattle, and, in consequence, yield less milk.

The Breitenbergher race, which is well distributed throughout the Grand Duchy of Mecklenburg, originated in the marshes near Itzehoe, in Holstein. It is, of course, a marsh or lowland race, and might with great propriety be classed as a branch of the great Friesian or Holland race. It is a race the type of which is a medium sized animal, with fine hide and bones; the color is either a white ground with dark brown spots, or a brown ground with white spots. The head is rather more stoutly built than in the Friesian; the horns short; neck and brisket small; the withers rather prominent; the back sharp; the body wide and deep, and the legs longer than the Friesians. The shoulder lacks flesh, but the hind quarter is full. The Wilster and Krempner marsh races are merely varieties of the Breitenberger race. All these are celebrated milkers, the yield ranging from 22 to 38 quarts per day per cow, which have already been described in the chapter on Holstein.

The Jutland race is a native of Jutland, the province north of Schleswig Holstein. The type is that of small animals, with very fine and delicate bones; the color is grey or black, but spotted and "blotched" appeared to be the colors of a majority of those I saw. The head is long and narrow; the horns fine and bent upward, or rather outward; neck, and skin light; withers prominent; back sharp and "swayed;" chest narrow, and the abdomen pendant. Accustomed to scanty nourishment, it thrives well under improved circumstances, and hence is sought much after in the neighboring provinces.

The Tonder race is a mere variety of the Angle race, but are somewhat heavier.

The Montafauner race is a branch of one of those uniformly colored races—that is; there are no spotted or two colored cattle among them—which, at an early day, were introduced into central and western Europe, and appears to be an upland or mountain race. They may be regarded as heavy medium cattle, lighter than the Schwytzer, and heavier than the Allgauers. The cows have been known to weigh from 1200 to 1500 pounds. A medium sized animal of this race measures 68 inches in length and the same in girth, and is from 46 to 47 inches high. The color is a dark brown, very similar to that of the pure Devon. The head is short and broad; the horn fine, extending outward and upward, white at the roots, and at the tips they are black. The neck is of medium strength, with a very fine brisket; the withers somewhat prominent, but powerful; the back gently curved downward or inward; the hips broad and, as a rule, rather high, and the tail is set in very high; chest and belly deep and wide; the limbs short and well set; the hoofs, like in all mountain races, are very firm and well built; the shoulder and quarter are powerful, and the shins remarkably fine. The "bag," or udder, is large, and the cows are very remarkable for their gentle disposition. So far as the milking qualities of this race is concerned, all I could learn may be summed up in a very few words, viz: In the beginning of the month of May they are sent to pasture on the Alps, where they remain until September; then from that time until the next May, they are fed on long-cut hay and aftermath. A cow weighing from 1,000 to 1,100 pounds, live weight, will, under this treatment, yield an average of *ten* quarts of milk per day. Thirty-eight and a half quarts of this milk will yield 4$\frac{5}{16}$ pounds of butter, 9$\frac{3}{4}$ pounds of cheese, and 2$\frac{1}{2}$ pounds of *zieger*.* These Montafauners have a very hardy constitution, and are very readily acclimated; make very good and heavy work cattle; fatten readily, but the flesh is not so good as that of some other races.

The Allgauer race, as well as the Montafauner, originated, so far as is now known, in Switzerland or in the mountain chains to the east of Switzerland. In any event, it is an Alpine race. This race is now well distributed throughout Baden, Bavaria, Wurtemburg, Saxony, Prussia, Bohemia, &c., and of late years has obtained a very enviable reputation, and is that race known in the Hamburg and London markets as "Bavarian" cattle. It is a race of medium sized animals. Ordinary animals are about 77 inches long, 48 inches high, and are 72 inches in circumference. A cow of this size, when fat, will weigh from 900 to 1,000 pounds. These cattle are remarkable for their compact build and very fine proportions of body and limbs. The most prevailing colors are gray and dun, with a darkish shade, wax colored mouth and inside of ears, and a stripe on the back, which extends down and over the bag. The skeleton is of medium strength; the head small, but elegantly formed, and the mouth wide; the fine horns are white at the roots, but black at the tips; the neck is short but stout, and has a well-set brisket; the withers elevated, yet strong. The back, loins and hips are broad or wide, and the long fine tail is regular and well set; the chest and barrel are rather deep and wide, yet well formed. The lower limbs are finely formed; the shin and hoof are particularly fine. This race of cattle, more than any other, has the power of transmitting its qualities to its offspring, and a dash of its blood is readily detected in animals of the fifth generation from the original cross. In late years it has been extensively crossed on the Montafauners without any apparent, but on the contrary much actual benefit —the cross having improved its size and milking qualities, without having detracted from its hardihood, its ability to thrive upon scant pastures, and its fattening properties. In Allgau it is estimated that a cow weighing, alive, from 900 to 950 pounds, (English) and is daily fed an average of 30 to 36 pounds equivalent of hay,* will give 2,050 quarts (English) of milk, including that which is allowed to the calf. Cows weighing 1,000 pounds are estimated to yield about 2500 quarts (2475). From 11 to 13 quarts are required to make one pound of butter. Six to seven quarts will make one pound of *fat* Swiss cheese.

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* I am indebted for this information to Professor Stockhard.

From a very precise and detailed experiment made at Weyenstephan in 1855, kindly furnished me by a friend, it is stated that 28 Allgau cows, weighing from 900 to 1,000 pounds, live weight, and receiving daily 37½ pounds of equivalent of hay, gave an average of 2,296 quarts of milk each, exclusive of the milk allowed to the calves, which they were allowed to suck for a period of four weeks. In 1861–2, forty-eight Allgauer cows of the same live weight, and with the same amount of food, on the same estate, yielded 2,459 quarts of milk. In this, as in the preceding, the milk consumed by the calves is not estimated.

An account was kept by Mr. C. Wertheimer at Ranshofen, in Austria, which shows that with an average of 22½ pounds equivalent of hay, cows weighing 880 pounds, yielded on an average, during a period of five years, 1,278 quarts of milk; one pound of butter required 10 to 10½ quarts of milk, and one pound of cheese, 5 quarts.

Since the Allgauers have been introduced into Saxony, the Minister, Baron Dr. Reuning, has ordered experiments to be made to ascertain what race of cattle yielded the greatest amount of milk and butter in proportion to the amount of food consumed. The reports may be found in the " Amts and Anzeige Blatt," of the agricultural department, kindly furnished me by Dr. Reuning, Vol. for 1857, page 42. *(See next page.)*

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* In Germany *all* the cattle food is estimated in eqivalents of hay. The experiments in feeding, and chemical analysis, have enabled them to estimate very nearly the economic value of every kind of cattle food used. Annexed is a table of these equivalents, to be found in almost every German treatise on cattle feeding. (*See next page.*)

According to chemical analyses, and cattle feeding experiments, it is ascertained that—

Green food.	100	pounds	of Hay, is	equal to	420	pounds	of good Meadow Grass.	
	100	"	"	"	400	"	Red Clover (green).	
	100	"	"	"	400	"	Lucerne, "	
	100	"	"	"	380	"	Esparsette, "	
	100	"	"	"	425	"	Vetches, "	
	100	"	"	"	280	"	Indian Corn, "	leaves and stalks.
	100	"	"	"	500	"	Rye, "	before blooming.
Various kinds of Hay.	100	"	"	"	100	"	good, ordinary Meadow Hay.	
	100	"	"	"	100	"	Red Clover "	
	100	"	"	"	90	"	White " "	
	100	"	"	"	100	"	Lucerne "	
	100	"	"	"	90	"	Esparsette "	
	100	"	"	"	100	"	Vetch "	
	100	"	"	"	150	"	Rye (cut green) "	
Straws.	100	"	"	"	150	"	Artichokes, leaves, stems, &c.	
	100	"	"	"	275	"	Wheat Straw.	
	100	"	"	"	300	"	Rye "	
	100	"	"	"	200	"	Barley "	
	100	"	"	"	200	"	Oat "	
	100	"	"	"	160	"	Pea, Vetch and Bean Straw.	
	100	"	"	"	120	"	Lentil Straw.	
	100	"	"	"	200	"	Buckwheat.	
	100	"	"	"	200	"	Corn Fodder.	
	100	"	"	"	125	"	Clover Chaff.	
Grains.	100	"	"	"	40	"	Corn,	
	100	"	"	"	36	"	Wheat.	
	100	"	"	"	40	"	Rye.	
	100	"	"	"	44	"	Barley.	
	100	"	"	"	46	"	Oats.	
	100	"	"	"	48	"	Speltz.	
	100	"	"	"	36	"	Horse Beans.	
	100	"	"	"	36	"	Peas.	
Roots, &c.	100	"	"	"	44	"	Buckwheat.	
	100	"	"	"	200	"	Potatoes.	
	100	"	"	"	250	"	Artichokes.	
	100	"	"	"	300	"	Beet.	
	100	"	"	"	275	"	Kohlrabi.	
	100	"	"	"	250	"	Carrots.	
	100	"	"	"	450	"	Turnips.	
	100	"	"	"	450	"	Cabbage.	
	100	"	"	"	600	"	Beet leaves.	
	100	"	"	"	500	"	Cabbage leaves.	
Miscellaneous.	100	"	"	"	50	"	Wheat or Rye Bran.	
	100	"	"	"	45	"	Oil Cake.	
	100	"	"	"	50	"	Rape Cake.	
	100	"	"	"	70	"	Poppy Cake.	
	100	"	"	"	75	"	Acorns or Horse Chesnuts.	
	100	"	"	"	300	"	Apple Pumice.	
	100	"	"	"	600	"	Pumpkins.	

TABLE OF EXPERIMENTS.

	Allgauers. (Dun colored.)			Hollanders.			Common Cattle.				
Year.	Average yield of milk.	Production of 1 cwt. equivalent of hay.		Average yield of milk.	Production of 1 cwt. equivalent of hay.		Average yield of milk.	Production of 1 cwt. equivalent of hay.		Average of milk.	Average product of 1 cwt. of hay.
		Kannen[*] of milk.	Kannen of butter.		Kannen of milk.	Kannen of butter.		Kannen of milk.	Kannen of butter.		
1852	2932	29.32	2.59	3272	27.27	2.01	2212	22.12	1.91	......	......
1853	3044	30.44	2.40	3267	27.22	1.88	2411	24.11	1.79	3225	26 87
1854	2856	28.56	2.31	2992	24.92	1.71	2018	20.18	1.56	3003	25.02
1855	2810	28.10	2.10	2676	22.30	1.47	2303	23.03	1.79	2846	23.61
1856	3050	30.50	2.20	3132	26.10	1.73	2635	26.35	1.84	2806	23.38
Av'ge.	2938	29.38	2.32	3068	25.26	1.76	2316	23.16	1.78	2970	24.75

Experiments made at Calbe give the following result:

Holland cows yielded 8 kannen of milk per day, or 3726 quarts per annum.

Allgauers cows yielded 6 kannen of milk per day, or 2785 quarts per annum.

But it required 13 quarts of the Holland cow's milk to make one pound of butter, or an annual product of 225 pounds of butter, whilst it required 9 quarts only of the Allgauers cow's milk to make a pound of butter, or an annual product of 243 pounds. The same authority from which this last statement is taken, states that the Allgauers are less susceptible to the *Pleuropneumonia* or RINDERPEST than the Hollanders.[†] The report of the Agricultural Association at EILENBERG,[‡] says that from the same quantity of milk 2⅛ pounds more butter, and 1⅛ pounds more cheese, could be made from the Allgauers than from Hollanders. At the Agricultural School at LIEBWERD, there was a correct account kept by the Superintendent, Mr. LAMBLE, from 1850 to 1857, of which the following is a summary:

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[*] Kannen of milk is equal to 0.318 of a gallon; a kannen of butter is equal to 2.47 pounds. [†] Annalen der Landwirthschaft, 1858. [‡] Wilda's Central Blatt, 1857.

BREED OF CATTLE.	COLOR.	LIVE WEIGHT.	ANNUAL AMOUNT OF MILK.	PER CENT. OF CREAM.	
		Average.		Winter feeding.	Summer or green feeding.
		Pounds.	Quarts.	Per cent.	Per cent.
Allgauer	Dun	901	1385	20	12
Bohemian Highlands	Red Spotted	905	1051	17	10
Oldenberger	Black Spotted	1680	1026	15	8
Swiss, (Bernese.)	Red Spotted	1148	855	21½	13
Tyrol, Zillerthaler.)	Reddish brown	858	921	22	14

From this experiment it was evident that the Allgauers gave a greater return for the food consumed, both in milk and manure. The other cattle were disposed of, and the lot of Allgauers then on hand (36 cows) were retained; and during the first quarter of 1857, they yielded 5048 quarts of milk, making an average 1662 quarts per cow per annum, and as soon as green feeding could be commenced it was expected that the products would be larger.*

Simmerthaler and Freiburger races are the most prominent of Swiss cattle. It must be observed that there is a difference between "Swiss" cattle and "Schwytz" cattle. The latter are a dark brown or "Devon" colored race, and originated in the Canton of Schwytz, in Switzerland, whilst the Simmerthaler and Freiburger also originated or trace back to Switzerland, but not to the Canton Schwytz. The Simmerthaler race belongs to the heaviest race found in the Canton Berne, and is, beyond doubt, the most beautiful of all the continental races of German cattle. This race attains a hight of 4 feet 8 inches to 5 feet; from 7 feet to 7 feet 5 inches in length, and measures 6 feet 2 inches to 7 feet in circumference, and a fully matured and fattened cow weighs from 1,700 to 2,000 pounds. The prevailing color is red or dun spotted; they seldom have any black color on them. The head is very well formed, and the animals have a kind and confidential look. The horns are fine, are bent somewhat forward and upward, and are either white or a cream color; the neck and brisket are fine rather than course; the withers, crop, spine and loin are on a line and broad; the tail is set high, and the chest and barrel are wide and deep. The limbs are of medium height and well set; shoulder and flank broad and fleshy, and the shins rather fine. The hide is medium, and is covered with fine and soft hairs.

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* Allgemeine Land und Forstwirthschaftliche Zeitung.

The milking qualities of some individuals of this race are spoken of in the highest terms as being more productive, and yielding milk of a richer quality, than that of the Schwytz. The Simmerthalers are active on foot, and are endowed with great strength and endurance; hence they are selected for, and are very much esteemed as working cattle; and finally, it is said that they fatten very readily, and that the flesh is better "marbled," better flavored and more tender than that of any other continental race. But they are great feeders, and are not very choice in their food. On the one hand it has been asserted with great confidence that this race is very susceptible to disease, whilst on the other hand this statement is equally confidently denied.

Prof. Dr. L. Rau, formerly Professor of Practical Agriculture at the Royal Agricultural Academy at Hohenheim, (but at present Professor at Carlsruhe) published a statement of the milk product of 751 Simmerthaler cows, which, during a series of years, had been kept at Hohenheim. These cows averaged 1,300 pounds live weight, and yielded an average of 2,408 quarts of milk each per annum, or about 6⅔ quarts daily. The Professor states that these cows were fed daily an equivalent of 40 lbs. of hay (equal to 3 pounds of food for every 100 pounds of live weight), and that 100 pounds of hay produced 33 pounds of milk. The largest yield of any of the cows of this race, in a year, was 4,834 quarts. The dam of this cow gave 4,514 quarts in one year.

Prof. Weckerlin (also formerly of Hohenheim) gives the following as the average product of each of these cows per annum at Hohenheim:

In the year	1840–41	2,414 quarts.
	1841–42	2,740 "
	1842–43	2,340 "

(This year—1842–43—the forage failed.)

Twenty-eight heifer calves of the Simmerthaler race were purchased in Wurtemburg and removed to Neudeck, in Bavaria. The calves were selected from a herd famous for their milking qualities. When in milk they were fed an equivalent of 3 pounds of hay for every 100 pounds of live weight; this amounted to 27 to 28 pounds of hay equivalents per day per head. The following is the milk product:

A first calf cow gave	1587	quarts of milk, or	4.3	quarts per day.
A second " "	1941	" "	5.3	" "
A third " "	1941	" "	5.3	" "
Average	1712	" "	4.7	" "

Voigtländer Race.—It is a general belief that this race was produced by a cross of the Zillerthaler bulls with the native cows of Bavaria, and trace back to the Fichtel mountains as their place of nativity. They are small and light; are what is known as a chestnut brown color. The cows weigh from 2½ to 3½ cwt. (112 pounds) and a well fatted ox weighs, net, from 4 to 6 cwt. of 112 pounds. The head is short but broad; the horns very fine; the neck is short, but is on a straight line with the withers, crop, back and hips. The withers are strongly built; the spine is indicative of strength; the flank is full; the tail is set very high; the brisket is wide and deep. The front limbs are "stocky," rather than otherwise, and the shoulder is very strongly built. The hind limbs are not so well built, and considerably lighter in proportion. The milking qualities are very fair. But this race is more popular for its excellent fattening qualities, tender and juicy flesh; and it is for these qualities, rather than any other, that it is prized. This race is readily distinguished from the Angle and Jutland races, although the flesh is more nearly alike in these three races than with any other that I met with.

In several discussions which have taken place in our agricultural journals at various periods, an opinion has been advanced that the Holland is the parent breed of the short-horn. Not wishing to be understood as placing myself as umpire in this matter, I yet cannot resist saying that, after studying the 131 head of Holland cattle on exhibition, and having, during the past eight or ten years, seen many short-horns at State Fairs, and in private herds, I have been unable to remember a single "point" laid down as short-horn perfection, in Morton's Cyclopædia of Agriculture, which the Hollander does not fill as well as the short-horn. In fact, some of the Hollanders fill the bill better than the short-horn itself, with one exception—color. I have never seen a short-horn of the same color of the majority of Hollanders; large spots of black and white is almost uniformly the color of the latter, whilst roan, white, or red, is the prevailing color of the former. There were some very dark roan Holland bulls, some of a mouse color, some of bright dun, but the great majority were black and white in large spots.

Many of the breeders here claim that the short-horn is simply an improved Hollander; others, and among them Herr Von Elsner, of Gronow Silesia, a very intelligent gentleman and breeder of the highest reputation, claim that there is no consanguineous relation between them, but that both of them are lowland races, and therefore have many "points" in common. As remarked on a previous page, it must be remembered that the "Dutch" cattle, although abounding in Holland, are not the *true* Holland breed, any more than the cattle of Durham county, England, are thoroughbred short-horns. The Holland bull is as large, as broad and level on the back, has the same shaped head, neck, horns, nostrils, and muzzle, as the short-horn, but he lacks in development of brisket; the head, neck and horns of the Holland cow are finer than that of the short-horn cow, the carcass eqally square, broad and deep, but excels in the development or secretion of milk. The breeders here admit cheerfully the excellence of the short-horn as a *beef* race, but claim that the Hollanders, Breitenburgers, Oldenburgers, East Friesian, and Swiss, far excel it as *milk* races. Mr. Elsner has imported and bred short-horns for some years past, and informed me that he found them somewhat difficult to keep, and that they were very liable to be barren; that they were by no means as certain breeders as any of the continental races.

The East Friesian (Ost Friesland) are easily kept on scant pasturage, and yield large quantities of milk. For beef or work they are not as desirable as "Ohio Pennyroyals."

From the great popularity of the Oldenburgers, I was surprised to find so few on exhibition. It is a very beautiful race of cattle—elegant in form, often of a beautifully mottled color, medium but very gracefully curved horns; hides as soft, mellow, and silky as any short-horn, and extraordinary milkers.

There were, as indicated in the table, several races represented by a single individual; these, it is fair to presume, were brought as curiosities, or rather as the remnants of former popular breeds, but now superceded by others; such are the Sarlabot, Sarlabot-Dessau, Schwarzower, Tonder, Werder, &c. The Sarlabot was a two-and-a-half year old bull, black and white spotted, originated in Normandy, Canton de Dazule (Calvados,) and from the Sarlabot estate, whence the name of the race. It is a polled breed. It is said that this race is now very favorably received in some parts of England, because they take on flesh very kindly, produce very tender and juicy beef, and are excellent milkers.

The Swiss race would certainly never become favorites with our short-horn breeders. The bulls are long, lank, "sway" backs, and have a large dew-lap commencing under the lower lip, running along the throat and terminating nearly midway on the belly. The cows are of various colors, and their reputation for milking qualities too well known to require repetition here. In the table will be found such names as Friesian-Oldenburger, Sarlabot-Dessau, Shorthorn-Breitenburger, &c.; these are crosses, the first name of the component breed *always* indicating the race of the sire, and the last name that of the race of the dam.

Of course, not much can with any kind of propriety be said of these half breeds as brood animals, because the type is not fixed and the qualities are undeveloped; but our German friends all admit that the cross produced between any of the local races and the short-horns, by breeding to a short-horn bull, produces a more desirable animal in many respects than either of the parents.

Among those exhibited under the class of miscellaneous, were a two-year old Hungarian bull and cow; two two-year old South American cattle, and a young Thibetan. All of these were from the Agricultural Institute at Berlin.

The system of soiling cattle is very extensively practiced in northern Germany. The country being low, level, or in fact nothing but a sandy plain, with here and there a clay deposit, the farmers are compelled to adopt every economical practice, and hence as many cattle are kept as possible, in order to obtain a good supply of manure; and the cattle are green-soiled in order to secure for proper application all the manure made, both liquid and solid. The green-soiling system undoubtedly is an economical one, so far as the pasturage is concerned, but we very much doubt whether animals kept in confinement for generations are or *can* be as healthy as those that have the free range of the open fields.

During the week preceding this exhibition at Stettin, by the invitation of Von Wehrman, a *geheimrath* of the Agricultural Bureau of Prussia, I attended an annual meeting of the Mark Brandenburg Agricultural Society at Prenzlau. During the discussions on the various topics, one member stated that he had always practiced the system of green-soiling his cattle, but of late years found that he lost many valuable cows by peurpual fever. Another member stated that he never, neither summer nor winter, permitted his cattle to remain twenty-four successive hours in the stable; in summer time they were in the stable during the night only, and in winter they were turned into an enclosure for several hours during the day; but he never had lost an animal by peurpual fever, or any other disease. In his opinion, cattle that were housed all the days of their life must necessarily, in course of time, have enfeebled constitutions.

From what I saw of the handling and management of cattle at this Fair, I was fully impressed with the convictions that the Germans, as a race, do not love domestic animals as much as Americans do. The care of animals seemed to be much more of a task to them than to us. The animals were all well cared for, tolerably well groomed, but it appeared to me that this was done rather because they fully understood that the health and condition of the animal would be better preserved by so doing, than out of any passion or real regard for the animal. It is no uncommon thing among Americans to manifest almost as much care and concern for their domestic animals as for their families. I do not intend this remark as an equivocal compliment, but as demonstrating the actual regard manifested by Americans for the comfort of our domestic animals.

Cattle breeding had attracted the attention of the Germans as early as the days of Charlemagne. But the want of encouragement in this direction, the profound ignorance of physiological laws, and especially the laws of hereditary transmission of qualities, together with the prevailing prejudice that agriculture was an employment fit for serfs and plebeians of the lowest grade only, were the almost insurmountable barriers in the way of any great or marked progress. Yet notwithstanding all these obstacles, the Germans were famous for having the best milk-breeds of cattle in the world. During the thirty years' war, and the seven years' war which followed shortly thereafter, agriculture in Germany was in a most pitiable and deplorable condition. Stripped of almost all the live stock of every kind—their flocks of fine wooled sheep, the result of a thousand years of care and breeding, were not only dispersed but destroyed. The desolate and unsettled condition of the country was anything but cheering or encouraging to the breeder or agriculturist. The people were so impoverished by these exhaustive wars, and the country still so unsettled, that the breeder was unable to import good or desirable breeding animals, and anything connected with agriculture was beneath the dignity or notice of the nobility; so that the agriculturists *nilly willy* were obliged to commence stock growing not only under the most adverse circumstances so far as finances and political relations were concerned, but with the cast off, deteriorated and degenerated animals as breeding stock. And this stock was bred mainly for the manure it produced. It was during this period that the German agriculturist gave expression to a sentiment, which, in some parts of Germany even to this day, has its advocates, viz.: "CATTLE ARE A NECESSARY EVIL." There is no doubt that density of population and necessary division of land into small parcels in a country where the law of primogeniture does not obtain, together with a soil producing scant pastures only, have all contributed to retard the increase of numbers of cattle, and the idea formerly deep-rooted that cattle, at best, were a necessary evil, has had its full influence in preventing any very marked improvement of quality taking place. But during the present century, much attention has been paid to cattle, and this interest is now engrossing the thoughts of the best physiologists and breeders throughout Germany.

As I shall have more to say about the cattle of Germany, I have thought it best perhaps to refer to the various breeds in the countries in which I found them to predominate.

HORSES.

In the department of horses there were three hundred and forty-eight entries. These consist of—

Class of thoroughbred stallions and mares	16 entries.
Class of heavy farm horses and mares	38 "
Class of light farm horses and mares	26 "
Class of saddle, hunter and cavalry horses and mares	64 "
Class of heavy pack horses and mares	5 "
Class of heavy draught horses and mares	87 "
Class of light draught horses and mares	29 "
Class of ponies	10 "
Class of brood mares for farm purposes	24 "

Professional horse-dealers exhibited the remainder of the horses entered. These horses were of various descriptions. It would occupy too much space to make anything like a descriptive list of the animals on exhibition; but, taken as a whole, the horses were superior to those usually exhibited at our State Fairs in the United States. Of course, we have some that are fully as good in their class as any exhibited here, but our people do not exhibit as many and uniformly good ones as here. The thoroughbred Arabian stallion, Selim Ben Ayssa, was on exhitition here. He is now thirteen years old, five feet two inches (Prussian) high. He was bred by the Sheik Kawan, near Bagdad, and is of the Saalavi-Djedrani race, and of the Anazee Ruolla stock. He was taken to the Crimea as a four-year old, and after making a "campaign" there was taken to England. The remainder of the thoroughbreds on exhibition were either owned in England or of English blood.

The following classification will perhaps convey a better idea of the kind and character of horses on exhibition:

	English.	Eng. Sire.	Arab Thoro'bred.	German Thoro'bred
Stallions..................	6	2	2	1
Mares	4	0	0	1

HEAVY CARRIAGE HORSES.

							Thoroughbred.		
	Percheron.	Perch. Sire.	Perch. Dam.	Trakehner.	Trak. Sire.	Trak. Dam.	Germ	Eng.	Russ.
Stallions..	2	0	2	0	3	0	9	3	0
Mares	2	1	0	1	1	0	5	3	0
Geldings..	0	0	1	2	1	0	3	0	0

LIGHT HARNESS.

Stallions..	0	0	1	1	5	0	3	0	2
Mares	0	0	0	0	2	0	6	2	0
Geldings..	0	0	0	0	0	0	3	0	0

HUNTER, SADDLE AND CANALRY HORSE.

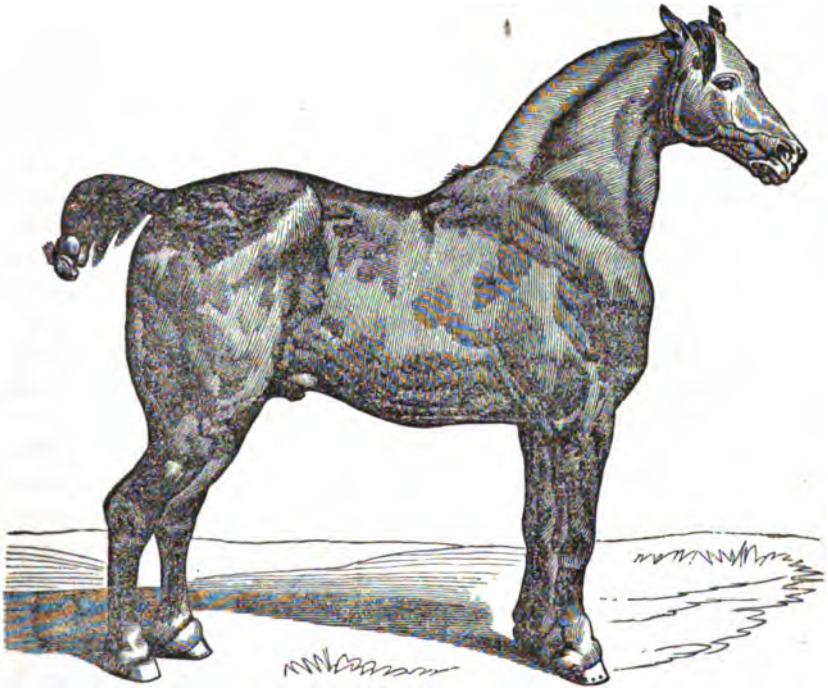
	Trakehner.	Trak. Sire.	Trak. Dam.	Eng. full.	Eng. half.	Arab full.	Arab half.	German.
Stallions....	2	2	0	9	8	4	2	8
Mares	1	2	0	1	9	0	0	3
Geldings....	3	1	0	2	1	0	0	7

HEAVY DRAUGHT HORSES.

	Suffolk.	Percheron.	German.	Scotch.	Ardennes.	Trahekner.	English.
Stallions....	1	20	9	1	2	0	0
Mares	0	8	1	2	9	1	0
Colts	1	5	2	0	8	1	0
Geldings....	0	2	1	0	7	0	4

5 Suffolk Punch Stallions.

It will be seen from this that the Percheron blood is esteemed on the continent for heavy carriage and draft horses. These Percherons originated in France. Those furnished from the departments of Loire-et-Cher and Eure-et-Loire, are held in the highest estimation. Not only is this breed remarkable for the possession of many excellent qualities, but recently, *fashion*, which exerts such an all powerful influence in everything in France, has invested this breed with a reputation which may be exaggerated, but it has, at all events, conferred upon it a great commercial value. There is no doubt that it is the best strain of horses on the continent for diligences, omnibusses, drays and farm work generally. The color most sought for is a gray, or dapple gray. It is, however, doubted by some persons of eminence whether the Percheron is yet really a fixed type—there are so many colors and such great variety in size, whilst the true Percheron is really a rather light horse. The head is elegantly formed, withers high, without being really massive, the croup, notwithstanding it is short and rather low, is yet well formed. It is generally believed that there is considerable oriental blood in this breed, because of the predominating color, gray, which, with age, it is said, becomes pure white; the hide is comparatively fine and soft, the hair fine, mane and tail rather silky, their carriage and general contour good. It is a remark



THE PERCHERON STALLION

able fact that with horses of arabic origin, white or gray, are common colors, whilst the heavy draft horses of Flemish origin are black. The Old English draft horse is said to be of Flemish origin, and is black.

The Percheron unites several very desirable qualities: he is very gentle in disposition, as much if not more so than our MORGANS, he is very tractable in harness, has great muscular strength and "*good bottom*," and his movements are sufficiently rapid for a "*working*" horse.

There are some singular usages or customs in France relative to this breed, which I learned when in Paris. One of these is that there are no Percheron *geldings*. I have frequently seen four or five stallions of this breed hitched up *tandan* in a Paris dray or heavy wagon, and I am told that none would be sold to persons who contemplated gelding them. These stallions, in the Paris drays, certainly manifest less viciousness than I often have observed in geldings of our common country horses.

The great market for Percheron stallions is at CHARTRES, in France. I am credibly informed that the stallions offered for sale at the Fairs at Chartres, are not sold by those who bred or reared them, but that the *third* proprietor is the one who offers them for sale. Those who breed the Percherons have mares only, and when these have produced a stallion colt, it is invariably sold when it is six months old, to a class of persons who retain such colts until they are eighteen months or two years old, and who get their pay for keeping by the difference in the price paid and that obtained for them. The third proprietor "*educates*" them, that is, "*breaks them*" to all manner of work, and does not offer them for sale at Chartres until he can guaranty them to work wherever placed.

The heavy farm horses on exhibition are the "Percherons," a French breed. I was assured they are not the "Normans," and yet they resemble them in height, form and general contour, and sometimes in color; the Percherons here are usually of a mottled color, but there is no uniformity in color after all; some are bright bays, others silver grays, some roan, some dun, some dark, chestnut brown, &c. The class of light farm horses may, without impropriety, be set down as a class corresponding to the "Cleveland bays." According to the catalogue, most of them are half-blooded, or even less. In fact, all classes of horses, even to the heavy draught horses, were regarded as being better if they had a sprinkling of thoroughbred blood in their veins.

The saddle, hunter and cavalry horses are heavier than the thoroughbreds, move with a great deal of grace and elegance; but all of these are partly thoroughbreds. I learn that the Prussian government intends to establish a race of cavalry horses—that is, to establish an artificial breed, which shall be best adapted to that exclusive purpose. The manner of exhibiting the horses was rather intended to embarrass than facilitate the work of the committee. The horse department was an enclosed street, the stalls being erected on both sides of the street, and when the horses were exhibited they were led into the centre of the street by a groom, and then led up and down the avenue as fast as the groom could run. All horses were exhibited in the same manner, whether thoroughbred or heavy draught. One could not resist a smile to see the heavy Percherons, weighing 1,500 to 1,600 pounds, with their heavy necks, broad buttocks, and thick legs, undertake to trot gracefully.

Horse racing is a very popular branch of sporting among the better classes of Germans; consequently great attention is paid not only to blood, but to thorough training. All horses exhibited in the class of thoroughbreds, saddle, hunter, cavalry and pleasure, manifested unmistakable evidence of careful breeding, excellent grooming, and capital training. Unlike the exhibition of horses at State and National Fairs, the exhibition here in Stettin was more fully represented by horses employed in agricultural purposes than for pleasure. The classification here is that adapted to the country, and therefore differs from that of ours; for instance, in the United States.we always have a class of "roadsters" and a class of "general purposes," or horses of all work. The roadsters would be out of place here, because there are no "buggies." Then, as every one here has a specific occupation (in consequence of a system of guilds), a horse of "all work" would be entirely out of place, and every horse owner purchases or breeds for a specific purpose. The "pack" horses were all "Suffolks," or "Suffolk punches." Three of them were exhibited by Mr. Thomas Crisp, of Butler Abby, Wickham Market, England, one by Freiherr von Seckendorff, and the other was from the royal horse-breeding establishment of Posen.

The class of heavy draught horses as will very naturally be inferred, consisted mainly of Percherons, English draught, and their crosses with Suffolks and other heavy breeds of the country. Many of these animals were of mammoth proportions. There was a three-year old from East Friesland, a dark brown stallion, well proportioned, 5 feet 10 inches high —or, in sporting phraseology, 17½ hands high—with such legs and neck as I remember never to have seen on a horse before. The class of lighter draught consisted, in the main, of horses of the heavy draught crossed with thoroughbreds.

As usual at all the exhibitions of this kind, the "ponies" attracted a great deal of attention, but the sight of the ponies, when exercising, was almost exclusively monopolized by the gentler sex. They forced their way through the dense crowd to the very imminent and sometimes positive damage of crinoline, and compelled the "lords of creation" to occupy a rear position. There were ten ponies, and they were of black, brown, bay, mouse, and dun colors, and were matches throughout.

The brood mares for farm purposes were of various strains, but the

Percheron and Normans predominated. The rules and regulations for this class required that every mare exhibited be either in foal or have a colt by her side; if in foal, and a premium be awarded, then the premium will not be paid until the foal is produced; and if the foal is dead no premium will be paid.

Whether the principle, if put in practice in the United States, of breeding horses for as many and specific purposes as in Prussia, would be economical, time alone can determine. As above alluded to, the guild system permits a person to engage in one pursuit only, and when once licenced and engaged in it he cannot change. Within the past few years this system has been somewhat modified, and a capitalist may now engage in any business he sees proper; may establish manufactories and carry on business in his own name, but he cannot direct the business himself if he has not been "brought up" to it; he is compelled by law to engage competent superintendents or foremen who have been brought up to the business; hence every industrial pursuit is confined to very narrow channels. Very few improvements, and very seldom are new discoveries or inventions made in proportion to the population and the number engaged in industrial pursuits. This system manifests itself even in horse-breeding; hence there are no horses here, as with us, that will work in a plough, in a carriage, buggy, and under the saddle. It is very doubtfull if even we have horses that can be applied to all these purposes and acquit themselves in every specific performance as well as those reared for each of these specialties, and each specialty limited to the individual, notwithstanding we have horses that, as individuals, perform equally well in all the points enumerated.

The TRAKENERS are a German breed, corresponding to the English breed of turf horses, that is, oriental blood crossed upon the best German. The Trakeners are all dark colored—from a deep bay to a jet black.

Like most of the celebrated strains or breeds of domestic animals, the origin of these Trakeners is involved in considerable obscurity. It appears that during the first years of the eighteenth century, horses were so scarce in Germany that the King of Prussia could not obtain enough of appropriate breeds to mount his cavalry. He therefore determined to establish a royal stud in LITTHAUSEN, for the purpose of breeding saddle-horses, especially, but not excluding draft horses as well as horses for other purposes. In his Cabinet order of April 3, 1713, King FREDERICK WILLIAM, of Prussia, orders that a number of stations shall be designated throughout Prussia, at which, during the proper season, stallions will be kept, the headquarters of these stallions at other parts of the year to be in the Province of Prussia, at Gumbinen, Trakenen, &c., and that all persons owning mares (except such of the nobility as may have good stallions of their own,) shall bring their mares to these several stations to be served by the stallions of the royal stud, and all the stallion colts, the product of the mares, thus brought to be castrated before weaning, so that the race or breed of ordinary stallions shall cease to exist.

Now there is no doubt that the stud contained several thoroughbred Arabian stallions, but as no names of stallions are mentioned until 1779, but they are designated as the "black stallion," the "chestnut brown stallion," &c., &c. In 1779 we find on the register such names of stallions as ARRACK, BERLOCK, *Blitz*, BRAVO, CATO, GALLANT, PISTOL, SKIES, SPUNK, TARROCK and TYBO, indicating English and Arabic rather than German origin, for with the exception of *Blitz*, there is not a German name in the list.

This system of a Royal stud has been retained until the present time. The noblemen have permission to keep their own stallions, and persons owning mares are at liberty to have them bred to the stallions of the nobility. GEHEIM RATH WEHRMANN furnished me with detailed statistics of the Royal stud, from which I have condensed and made into the following table: (See Table on page 58.)

This table is a very suggestive one, and furnishes data for many phenomena in horse-breeding, and, in a *practical* sense, is worth more than a volume written out by a turfman. In the first place, it demonstrates the care nature takes to prevent a preponderance in any marked degree of either of the sexes; out of 26,439 living colts, the mare colts are less than 450 in excess, or less than two per cent. *Secondly.* The number of miscarriages average 2,174 per annum, and the number of dead-born colts and those died in foaling average 4,960 per annum. Is not this an extraordinary average? In Ohio we have no such statistics, and consequently can make no comparison. *Third.* In a series of five years in which one stallion was bred on an average to forty-six mares—thirty-three per cent. or one-third failed to be impregnated; and the remaining thirty-one mares produced twenty-four living colts; or, in other words, fifty-two per cent. of the mares bred produced living colts, nearly fifteen per cent. of the mares "cast" their colts, or the colts died in being dropped, and thirty-three per cent. of the mares would not breed at all.

When I first examined the statistics, I supposed that forty-six mares was too great an average to be bred to a single stallion; but upon examining the statements more in detail, I find that where a less number were bred to a stallion, the average produce was relatively still less. For example: In Westphalia, where an average of thirty-three mares were bred to one stallion, twenty mares, or fifty-nine per cent., only proved to be in foal, and these twenty mares produced fifteen living colts only, or forty-five per cent. of the mares bred produced living colts. On the other hand, in East Prussia, where fifty-two mares were bred to one stallion, thirty-nine mares, or seventy-six per cent., proved to be in foal, and these produced twenty-nine living colts, or nearly fifty-six per cent. of the mares bred produced living colts. From this it is legitimate to infer that the number of mares bred to a stallion—the number, of course, not to be abnormally excessive—does not affect the breeding qualities of the stallion, because in East Prussia 315 stallions were bred during a period of five consecutive years, and each stallion was bred to nineteen mares, or fully sixty-three per cent. more than those in Westphalia, and the result is largely in favor of the latter province.

It may not be inappropriate to state the following in connection with the Royal Stud of Prussia. In 1787, FREDERICK WILLIAM, King of Prussia, issued a Cabinet Order in substance as follows:

Section 1. The mares selected to be bred to stallions in the Royal Stud, shall be branded with the brand of the establishment at which they are to be bred. These branded mares are to be brought every year to the stud from and after the 20th of March, under a penalty of five Thalers, and are to be brought to the stallion to be bred every nine days until they reject the stallion.

Sec. 2. The proprietor of the mare shall not pay any fee for the services of the stallion, until the mare has dropped a living colt, then the sum of one Thaler is to be paid to the establishment.

Sec. 3. No person shall be allowed to keep a stallion for breeding purposes, except such as have ample facilities for stable feeding, and these persons must annually bring their stallions to the Stud Inspector, and if found defective, whether through hereditary transmission of qualities, or otherwise, then, such defective stallion, shall be at once castrated. Furthermore, if any stallion, excepting such as belong to the Royal Stud, be found in pasture with mares, the stallion shall be confiscated, and the proceeds placed in the funds of the Stud.

Sec. 4. No one shall at any time breed a branded mare to any stallion other than one of the Royal Stud, under a penalty of two Thalers, neither shall one, under the same penalty, be permitted to use a stallion for breeding purposes under four years of age.

Sec. 5. Any person attempting to sell a mare to parties outside of the kingdom, shall pay a fine of ten Thalers, or according to the case, work an entire confiscation of the mare, without any hope of a remission of the fine. And should this order at any time be violated, then and forever after said violation, one ear shall be cut from off all the mares and mare colts in the kingdom.

Sec. 6. All the stallion colts dropped by the branded mares must be presented at the stud for inspection when they are two years old. Such as the inspector may deem proper for breeding purposes shall be retained and a fair price paid the owner for it; such as are not deemed proper for breeding, shall then and there be castrated. If more are offered for sale than the inspector deems prudent to purchase, he shall give a certificate of merit to the owner, so that he may sell if he wishes to parties who are permitted to keep stallions

Sec. 7. Permits owners of branded mares to sell or trade them to persons in the kingdom, by giving notice of their transactions at the Stud.

Sec. 8. Forbids all persons, under a penalty of five Thalers, from riding or harnessing, or using in any manner, any mare under three years of age—it was believed that if used at an earlier age the mare would be injured.

Sec. 9. Forbids all persons from concealing colts they may have, of from selling stallion colts, under two years of age, out of the kingdom.

Sec. 10. Is a long preamble explaining the purpose of the above order, and declaring it to be one of the king's objects to raise horses in the kingdom, fitted for all purposes, more especially for cavalry; and concludes by naming that man a "good subject" who cheerfully sells a two year old stallion to the Stud at a *fair* price, and a golden "memorial" worth six Thalers was ordered to be given to every such salesman.

Sec. 11. Forbids any one working in a team or riding a brood mare in foal at any time during a period of six weeks before foaling, and six weeks after foaling.

Sec. 12. Relates to registering the stallions, mares and colts.

Sections. 13, 14, 15 and 16 are civil or police regulations.

All the royal documents have been carefully preserved, and as far as I could learn section two of the Council Order is the only one which has undergone any modification.

The annexed tables obtained from authentic and "official" sources may be of interest to the horse breeders of Ohio.

The following table exhibits the status of

THE ROYAL PRUSSIAN STUD FOR 1864.

	Normal number of Stallions.	I Class. Light saddle.	II Class. Heavy saddle or light carriage.	III Class. Heavy Carriage.	IV Class. Heavy draught.	Total.	English Thoro'bred.	Anglo-Arabian.	Pure Arabian.	Total.	Recently purchased.
East Prussia..........	300	56	141	131	....	328	12	15	5	32	......
West Prussia..........	105	20	50	34	1	105	8	5	....	13	15
Posen..................	140	20	65	46	9	140	6	7	2	15	32
Brandenburg..........	140	3	60	71	1	135	9	7	....	16	38
Province of Saxony..	110	14	51	34	1	100	5	3	....	8	13
Silesia..................	150	31	71	43	5	150	13	4	1	18	52
Westphalia............	80	10	44	20	3	77	....	2	....	2	28
Rhenish Provinces....	55	1	10	15	29	55	....	....	....	3	......
Total.............	1080	155	492	394	49	1090	56	43	8	107	210

Operations of the Prussian Royal Stud for the five years ending 1864.

District or Province.	No. of stallions.	No. of mares served.	Aged stallion.	Stallions first year in service.	No. of mares served by each stallion.	Local stallions.	Aged stallions.	Stallions first season.	Mares served.	Barren.	Fruitful.	Miscarried and colts died.	Stallion colts.	Mare colts.	Mares served by each stallion.	Mares in foal to each stallion.	Living colts to each stallion.	Per cent. of mares in foal.	Twin births.	Total colts.
SILESIA. Average of five years	145	8,275	134	11	57	144	134	10	8,087	3,309	4,778	884	1,946	1,949	56	33	27	59	..	3,895
TRAKEHNEN. East Prussia. Average of five years	320	17,334	251	68	54	315	249	66	16,448	3,875	12,573	3,144	4,684	4,747	52	39	29	76	2	9,431
WEST PRUSSIA. Average of five years	102	4,667	101	....	45	100	100	....	4,486	1,420	3,066	532	1,215	1,323	44	30	25	68	3	2,538
BRANDENBURG. Average of five years	133	5,908	125	8	44	134	125	9	5,798	2,048	3,750	838	1,435	1,486	43	28	21	64	9	2,921
POSEN. Average of five years	138	5,874	130	7	42	137	128	9	5,596	1,604	3,933	702	1,568	1,730	40	29	24	71	8	3,298
PROVINCE OF SAXONY. Average of five years	103	4,328	92	11	41	106	94	12	4,330	1,669	2,661	535	1,037	1,095	40	25	20	61	6	2,132
RHENISH PROVINCES. Average of five years	52	1,875	48	4	36	51	48	3	1,921	797	1,124	136	491	496	37	22	19	58	..	987
WESTPHALIA. Average of five years	79	2,672	72	7	33	79	73	6	2,666	1,070	1,598	362	619	619	33	20	15	59	4	1,238
Average of the KINGDOM	1071	50,933	954	117	47	1068	952	116	49,333	15,792	33,541	7,134	12,995	13,444	46	31	24	67	31	26,439

AVERAGE AGE OF STALLIONS.

Year.	Average.	Year.	Average.
1787	6.1	1835	10.1
1788	7.0	1836	11.3
1793	10.3	1837	10.7
1798	8.7	1838	11.5
1802	8.4	1839	12.0
1807	8.9	1840	12.8
1812	9.2	1841	12.8
1815	9.5	1842	12.6
1816	10.7	1843	12.3
1817	11.7	1844	11.8
1818	10.9	1845	11.6
1819	10.6	1846	11.7
1820	10.6	1847	11.6
1821	9.7	1848	11.3
1822	10.2	1849	10.8
1823	9.8	1850	10.3
1824	9.4	1851	10.4
1825	9.4	1852	10.6
1826	9.7	1853	10.1
1827	9.5	1854	10 4
1828	9.4	1855	10.9
1829	9.9	1856	11.1
1830	9.9	1857	10 2
1831	9.8	1858	10.9
1832	9.9	1859	11.3
1833	9.9	1860	11.0
1834	9.5	1861	11.3

NUMBER OF STALLIONS OF THE VARIOUS STRAINS.

Year.	Heavy draft.	Heavy saddle.	Light Saddle.
1850	46	108	62
1851	55	116	68
1852	65	115	61
1853	77	108	51
1854	85	106	43
1855	90	113	42
1856	91	114	42
1857	92	106	41
1858	96	104	47
1859	101	94	49
1860	101	98	49
1861	97	100	45

Year.	Number of Stallions.	Number of Mares bred.	Barren.	In Foal.	Miscarried.	Dead-born, deformed, sold, &c.	Stallion Colts.	Mare Colts.	Number of Mares bred to each Stallion.	Per cent. of Mares bred in foal.
1821	250	13,106	5438	7,668	748	433	3328	3159	52.3	58.3
1822	250	13,034	4943	8,073	1276	889	2956	2952	52.1	62.0
1823	250	10,999	4369	6,630	657	487	2754	2732	43.9	60.4
1824	250	13,556	4945	8,611	528	708	3626	3749	53 9	62.7
1825	250	12.823	4410	8,413	617	879	3384	3533	50.6	64.6
1826	250	12,982	4710	8,272	1060	604	3340	3268	51.2	62.9
1827	265	13,409	5217	8,192	1061	663	3211	3257	50.4	62.9
1828	307	13,618	5448	8,[illegible]0	1234	663	3160	3113	44.2	59.6
1829	325	14,882	5894	8,9[illegible]	1121	700	3604	3563	45.6	58.9
1830	300	13,228	4742	8,486	[illegible]	636	3855	3343	44.2	63.8
1831	275	11,827	4093	7,734	708	209	2904	2913	42.2	64.5
1832	305	13,956	4565	9,391	1074	1185	3540	3592	45.8	66.5
1833	301	12,829	3528	9,301	857	1535	3402	3507	42.0	72.7
1834	310	13,713	4035	9,678	1172	1553	3409	3544	44.5	70.1
1835	300	13,480	3437	10 043	654	1629	3890	3870	45.0	73.9
1836	313	14,409	4101	10,308	747	1598	3896	4067	46.0	71 6
1837	312	13,311	4309	9,002	587	1035	3670	3710	42.2	67 5
1838	308	13,304	4067	9,237	1023	1086	3547	3581	42.4	69.0
1839	302	13,186	4174	9,012	1112	1204	3319	3341	43.7	68.0
1840	307	14,697	4394	10,303	1181	1199	3955	3936	47.7	70.0
1841	308	15,318	4836	10,482	1373	1384	3855	3870	49.4	68.2
1842	304	15,876	4655	11,221	1796	1597	3936	3892	51.2	70.8
1843	314	15,122	4630	10,422	1084	1368	3887	4083	48.2	68.9
1844	319	16,389	5333	11,056	1570	2117	3780	3589	50.9	68 1
1845	319	14,721	4336	10,385	1413	1756	3650	3538	45.9	70.4
1846	316	15,153	4254	10,899	1113	1841	4039	3906	47 5	72.3
1847	317	14,640	3886	10,754	1059	1437	4[illegible]89	3969	46 3	73.6
1848	296	13,934	3597	10,337	1083	1911	3713	3630	46·9	75.1
1849	288	12,431	3454	8,977	727	1583	3476	3191	43 3	72.9
1850	291	13,886	3620	8,979	936	1287	4117	3927	47.5	64.3
1851	295	13,187	3936	9,251	874	923	3743	3711	45.0	71.7
1852	295	13,217	4337	8,880	604	902	3752	3622	45.3	68.2
1853	310	15.215	4515	10,700	979	1222	4329	4170	49.5	69.9
1854	297	15,694	5551	10,143	936	1158	4211	3838	53.1	65.2
1855	313	17,891	6112	11,779	966	1373	4745	4698	57 3	66.2
1856	321	16,380	4609	11,771	1135	1671	4402	4569	51.6	71.9
1857	313	15,996	4283	11,713	806	2146	4421	4341	51.2	72.3
1858	317	15,283	3781	11,502	1007	2267	3994	4243	48.1	74.4
1859	307	12,847	3662	9,185	558	1551	3524	3552	41.8	71.3
1860	315	15,559	3081	12,478	665	2957	4328	4531	48.5	76 1
1861	320	17,737	......	....	......	......	......	......	55.2	......

AVERAGE HIGHT OF STALLIONS.

Year.	No. of stallions. ft. in. 4 9	No. of stallions. ft. in. 4 10	No. of stallions. ft. in 4 11	No. of stallions. feet. 5	No. of stallions. ft. in. 5 1	No. of stallions. ft. in. 5 2	No. of stallions. ft. in. 5 3	No. of stallions. ft. in. 5 4	No. of stallions. ft. in. 5 5	No. of stallions. ft. in. 5 6	No. of stallions. ft. in. 5 7	No. of stallions. ft. in. 5 8	No. of stallions. ft. in. 5 9	No. of stallions. ft. in 5 10	Average. ft. in.
1787	5	11	10	28	61	54	58	21	15	1	1	1	1	..	5 1 .8
1790	6	13	21	69	73	76	72	35	24	..	1	1	..	..	5 1 .4
1795	2	11	14	72	81	62	42	6	5	1	..	..	..	..	5 1 .1
1800	2	16	21	122	104	67	59	19	3	..	..	..	..	..	5 1 .0
1805	1	14	33	109	97	58	46	11	..	..	..	..	..	..	5 0 .9
1810	2	10	26	47	56	51	23	2	1	..	..	..	..	..	5 0 .8
1815	2	12	29	40	60	24	12	4	2	..	..	..	..	..	5 0 .6
1820	..	3	6	31	37	36	19	8	1	1	2	..	..	..	5 0 .4
1825	1	..	3	18	40	50	49	32	13	5	3	2	..	..	5 2 .5
1830	..	..	..	4	20	58	64	41	11	16	5	1	..	..	5 3 .1
1835	..	..	1	9	41	61	57	43	16	13	7	..	..	..	5 2 .8
1837	..	..	1	7	29	63	53	52	22	16	5	..	..	..	5 3 .0
1839	..	..	..	2	12	32	52	73	36	23	13	5	..	..	5 3 .8
1841	..	..	..	..	9	31	57	76	37	21	13	5	1	..	5 3 .9
1843	..	..	..	2	7	29	58	80	31	26	12	4	1	..	5 3 .9
1845	..	..	..	3	7	26	50	72	43	30	11	7	1	2	5 4 .2
1847	..	..	..	..	2	18	50	67	47	32	9	6	1	2	5 5 .1
1849	..	..	..	..	4	14	48	63	45	33	15	7	2	1	5 4 .4
1851	..	..	..	..	1	7	51	66	50	30	27	5	4	..	5 5 .0
1853	..	..	..	..	2	3	45	59	49	32	31	6	6	1	5 5 .2
1855	..	..	..	..	3	5	43	61	55	38	29	7	5	1	5 4 .8
1857	..	..	..	..	3	7	39	55	60	44	28	8	4	..	5 4 .9
1859	..	..	..	..	3	11	39	60	57	42	27	6	3	..	5 3 .6
1861	..	..	..	..	2	6	38	60	56	48	28	5	3	1	5 4 .9

The feet and inches are of Prussian measure—the Prussian foot is 12.357 English inches.

SHEEP.

As before stated, the primary object of the exhibition was for the benefit of wool-growers, and it was reasonable to presume that here, at th headquarters of European wool-growing, a large exhibition of sheep would be found, and in this respect we were not disappointed. The entries of sheep of all classes numbered 2,044, and were as follows:

A.

		Entries.
a.	Bucks 2 years old and over, producing CLOTH wool *of at least* prime fineness, and that have the highest breeding qualities	101
b.	Yearling bucks, same as above	96
c.	Ewes 2 years old and over, same as above, in lots of three in each lot	142
d.	Yearling ewes, same as above	160
e.	Bucks 2 years old and over, producing wool *less* than prime fineness, but having the highest breeding qualities	22
f.	Yearling bucks, same as above	24
g.	Ewes 2 years old and over, in lots of 3 in each lot, same as above	33
h.	Yearling ewes, same as above	45

2. SHEEP PRODUCING COMBING WOOL.

a.	Bucks 2 years old and over, producing combing wool of at least prime fineness, and that possess the highest breeding qualities	54
b.	Yearling bucks, same as above	49
c.	Ewes 2 years old, in lots of 3 in each lot	130
d.	Yearling ewes, same as above	90
e.	Bucks 2 years old and over, producing wool of less than prime fineness, but that possess the highest breeding qualities	54
f.	Yearling bucks, same as above	167
g.	Ewes, 2 years old and over, in lots of 3 in each lot	342
h.	Yearling ewes, same as above	243

3. SPINNING WOOL.

a.	Bucks	13
b.	Ewes	10

B. MUTTON SHEEP, LARGE RACE, (LEICESTER AND LINCOLN TYPE.)

a.	Bucks	6
b.	Ewes	6

2. SMALL RACE, (SOUTH-DOWN TYPE.)

a.	Bucks	58
b.	Ewes	34

C. FAT SHEEP, (REGARDLESS OF RACE.)

a.	Animals under 5 months old	None.
b.	Animals from 5 to 18 months old	33
c.	Animals over 18 months old	64
d.	Animals heaviest, without regard to age	None.
Miscellaneous, without regard to age, sex or quality		54

The term "combing wool" has a different signification, or rather has reference to a different quality of wool from what it has in the United States. By combing wool *we* understand a wool which is very long and rather course, as the Cotswold or Leicester; but in Germany the long Merinoes are called combing wools, and are employed in the manufacture of ladies' dress goods, whilst the "cloth" wool is a finer and shorter wool, and is employed in the manufacture of fine broadcloths, cassimeres, &c., for gentlemen's dress goods.

It is conceded here that the French Merino (Rambouillet or Mauchamp) does not produce as fine and compact a wool as the Negretti, and an analysis of the entries demonstrates that, whilst more than one-half of all the fine-wooled sheep on exhibtion were Rambouillets, yet in the class of "prime" fineness, a class embracing 499 entries, 13 Rambouillets, *only* competed. The following is an analysis of the fine-wooled sheep on exhibition:

1. Cloth wool, prime fineness,	Negrettis	486
	Rambouillets	13
		499
Less than prime fineness,	Negrettis	110
	Rambouillets	14
		124
2. Combing wool, prime fineness,	Negrettis	92
	Rambouillets	231
		323
Less than prime fineness,	Negrettis	119
	Rambouillets	688
		807

Showing that out of 1,753 fine-wooled sheep, 946 were Rambouillets; and the analysis furthermore demonstrates that where the fine wools were divided into four classes, the great majority, amounting to almost 75 per cent. of the entire lot of Rambouillets competed in the lowest or coarsest class. Exhibiters were at liberty to compete in which ever class they saw proper.

The Rambouillets are highly esteemed here, and are pretty well introduced and distributed. Some of them were *splendid animals*, indeed; as, for instance, Mr. Vauflart Oudin, of Caumont by Marle, department of Aisne, France, among others, exhibited three bucks, aged two and a half years, weighing unshorn, but wool of one year's growth, respectively, 110, 112, 120 kilogrammes, or, estimating the kilo. at two and a half pounds English, 275, 280, and 300 pounds live weight. The sheep breeders have been exceedingly careful to keep the blood pure, and there are many flocks which were found in the latter part of the eighteenth and the commencement of the nineteenth century which have been kept entirely pure; this, however, is more frequently the case in Silesia than elsewhere. The Landgrave of Schwerin, a nobleman residing on his estate at Amalienhf, (and whose personal acquaintance I was fortunate enough to make,) exhibited four combing wool Merinoes two years old, which were originally from the stock flock at Kleisthöhe, and are the pure descendants of a stock established in 1816, from pure bred sheep which Napoleon I. ordered from Spain. A yearling ewe, marked 49 of 1864, had the most compact *white* and regularly crimped fleece I ever saw, and I inquired of the landgrave why he did not compete in the class of cloth wool instead of the combing wools; he replied that the wool was a shade too long to compete successfully in that class; I hope he took a premium, for he really deserved one. The bucks were well built, had splendidly formed and compact heads, and were valued at $500 (louis d'ors, 100.) I may mention here, (parenthetically) that one of the most distinguished sheep breeders told me that if I wished to purchase sheep I should not pay over 200 thalers ($150) for the best buck on the grounds; that there were none here or in Europe really worth more than that. He said of course some would ask 2,000 to 3,000 *thalers*, but they were purely fancy prices, and bucks equally as good in every respect could be purchased for 200 thalers. Another breeder remarked to me that the Negrettis were *so much improved* that the wool was entirely too fine, and that they were now doing all they could to introduce the Rambouillets, not because they believed the Rambouillets were better, not even as good as the Negrettis, but that the *cross* between the two would, in the course of time, produce the right kind of wool. Whatever may be the cause, the Rambouillets are rapidly gaining favor in Germany.

There were very few Electorals on exhibition. The Electorals, as far as I can learn here, are about equivalent to those we have always regarded as Saxonys; they have a short but very fine fleece. Many of the Negrettis, so called, which were on exhibition, had more or less of the Electoral blood in them. No breeder here seems to know much about the Paulars, or Infantados. A thorough-bred Negretti is a singular-looking animal; there is no portion of the body free from folds; wool down the forehead and over the face, wool down the legs to the hoof. Those on exhibition were fine and compactly built animals.

In the class of spinning wools the Lincolnshire, Oxford and Southdowns were exhibited, as well as crosses between the Southdowns and Merinoes. The Leicester, Lincoln, and Cotswolds were exhibited in the class of mutton sheep of the larger class. The Southdowns and Oxfordshiredowns, and some of the native races, were exhibited in the class of smaller mutton sheep.

There were several of the broad-tailed or fat-tailed sheep on exhibition. The tail is about six inches broad, and perhaps a foot long, and from two to three inches thick, and resembles a cushion placed against the hind quarters of the sheep rather than a *tail* but the general form of the sheep is more like that of a deer—long and thin legs, no wool on them; a light, long body, a tolerably long neck, and, taken as a whole, one would scarcely, at first sight, recognize them as sheep.

Taken as a whole the sheep on exhibition at Stettin were superior to the same number of sheep on exhibition at one of our State Fairs—although we have individual animals as good as any I saw at Stettin—but the *best* sheep were not there. I afterwards saw much better ones on some of the German estates. Sheep breeding and wool growing is more reduced to a science, or rather a trade if I may so call it, in Germany than anywhere else in the world. The Mecklenburgers very evidently have been paying more attention to wool than to carcass—the sheep from there were, as a rule, much smaller sized than from Silesia and other portions of Prussia. So far as carcass alone is concerned, the large Rambouillets were certainly entitled to a prize on this feature alone, but they certainly deserved none on the fineness or quality of wool.

I met a gentleman on the Fair grounds who then owned some of the stock of the sheep Mr. George Campbell, of Vermont, exhibited in Hamburg and sold them there. This man was from Mecklenburg, and he told me that he purchased them for constitution and carcass rather than for quality of wool; that in Mecklenburg too much attention had been paid to the quality of wool only, and the carcass neglected; and he hoped, by the introduction of the Vermont sheep, to improve the carcass, even if the wool did suffer in quality. I told him that I thought there were some equally well formed sheep here on exhibition; to which he replied, "Yes, even better formed, but the flocks here are nearly all blood relations, and I thought it best to infuse some fresh blood into my flock." He then told me that the Vermont sheep at no time were considered as producing a superior *quality* of wool, but that they produced an excellent *combing* or *delaine* wool, and that that kind of wool was now in greater demand than it formerly had been.

Many woolen manufacturers were also present at the exhibition, and I inquired of them if *fine* broadcloths could be made from such wool as that produced by the sheep exhibited by the Count or Duke* of Schwerin (which I think is about equal to the Vermont, but it has less grease), or of the general run of Silesians. I received the same answer from all—"No." The wool of the Schwerin flock is too long for fine broadcloths, but is well adapted for army goods, and ladies' wear, especially delaines. With the greatest care they cannot make as fine a cloth, nor a cloth with as good a lustre, as from the wool that Staiger produces. I was furnished with the names of several parties in Silesia whose flocks produced as fine wool as Mr. Staiger's, but on tracing out the pedigrees, I found that they all were descended from the same as Staiger's flock.

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* I am not sure of his title in English; the German title is GRAF. Grafshaft is *County*, and I think Graf is *Count*.

One feature of the Fair which attracted a great deal of attention, but which was of no interest to me except in a zoological sense, was an arrangement of apparatus for artificial fish breeding. The principle was the same as that adopted by Dr. T. Garlick, of Cleveland, some ten or fifteen years ago. The great lack of streams of running water throughout Prussia, and the rigid laws relative to "fishing," as a necessary consequence render fish not only scarce, but very high priced; therefore, by the system of artificial breeding of fishes, a fresh water pond covering an acre will, in a given series of years, return a greater revenue than if tilled in ordinary crops.

Beehives, somewhat on the Langstroth principle, were on exhibition, but the walls of the hive, instead of being made of boards, were made of straw, very ingeniously pressed. These straw hives absorb the moisture created by the bees much better and more readily than the wooden ones.

I saw many articles on exhibition manufactured from what is commonly known as artificial stone. The composition is soluble silica and Portland cement. Statuary, water troughs, tomb stones, table tops, ornamental window caps and sills—in short, almost everything that is made of marble or of wood may be made of this artificial stone, whilst it is more durable than wood and does not cost much more.

Steam plows from England were on trial as well as on exhibition here, but failed on the trial, although the trial field was very level and the soil a good mellow loam. A steam omnibus or street wagon was successfully operated; the operator could turn the conveyance either to the right or left at will, or turn around on a very small space of ground. The *drivers* were very broad; in fact all the wheels were very broad to prevent cutting into the soil or damaging the road. It would pass over elevations very readily, which I was assured amounted to a grade exceeding 200 ft. per mile. I was not much impressed with its practicability for our western continent, but admired it as a piece of very ingenious mechanism.

Almost all the agricultural implements on exhibition were from England, and the entire amount of agricultural machines and implements did not exceed the amount, and fell far short of the variety, annually on exhibition at the Ohio State Fair. The only American machines which I saw were the "*omnipresent*" Sewing Machines. I say omnipresent, for they were in every city, town, or village in which I stopped in all Germany.

From the earliest period of authentic history we find Germany engaged in wool growing, or rather in rearing flocks of sheep; and during all this period, this nation enjoyed the reputation of having produced the finest fleeces in the world. But these fine flocks were not only neglected, but utterly dispersed and destroyed during the thirty years war. Collecting together fragments of very degenerate herds, the Germans engaged anew in wool and sheep growing. During the eighteenth century many importations were made from Spain to various parts of Germany, in order to improve the quality of wool. As importations have been made into the United States from Spain and Germany, and especially from Saxony and Silesia in the latter country, it may be well to place upon record such facts, although disconnected and fragmentary, as may relate to the individual races of sheep imported.

In 1802 a Mr. Petri endeavored to obtain measurements and descriptions of the various races of *transhumantes* (or migratory) flocks in Spain. Whatever descriptions he succeeded in obtaining, they are certainly as vague and indefinite as any one could desire. In 1863, Mr. A. Korte, of Breslau in Silesia, and one of the editors of the German Herd Book, published a sort of dictionary of sheep breeding and knowledge of wool, from which I make the following translations, viz:

ALFIERO.—A cabana of Spanish sheep, which was one of the most celebrated races in Spain. In 1765 there were 61 bucks and 28 ewes of this breed imported into Saxony, and it was of this flock that the greater proportion of all the importations were made. What is very singular and remarkable, neither Petri nor any other writer has described the characteristics of this race or breed.

BEJAR.—A cabana or breed which Petri regarded as being as good in every respect as the Negretti. They are described as short-legged and heavy-bodied. Twenty-two bucks and thirty ewes were taken to Saxony in 1765.

CUENTA.—Five bucks and twenty ewes from this cabana were imported into Saxony with the second importation in 1779. There are many conflicting accounts of them in existence.

ELECTORAL.—Towards the close of the last century, Saxony took high grounds for the production of fine wools, in consequence, chiefly, of the importations made from Spain. These wools from Saxony were known in the markets as Electoral, that is, from the Electorate of Saxony. And the Saxons themselves made it their chief object to produce fine wools, regardless of race, tribe, or origin of sheep. Hence all the fine wools were, even in Saxony, called Electoral. With this prejudice or partiality in favor of fine wools, there necessarily was a blending of tribes, races, or breeds, to produce a fine wool, and the miscellaneous breeding of races in order to attain the desired object, in course of time produced a fixed type of sheep known as the Electoral sheep, which afterwards became widely spread throughout the German States. This Electoral sheep possessed the following characteristics, viz: Body small, tender, and with fine bones; head small, long, pointed and lean; long neck, with strong bones; the back sharp, and a sharp descent from the hips; the barrel, or body, slightly cask shape; the face covered with soft, short hairs; the eyes and nose perfectly bald; ears very thin, long, and semi-transparent; the legs slender, seldom any wool on them; as a rule, the legs were covered with hair; belly with very short wool, or bare. The lambs, when dropped, were hairless, but often were dropped with incipient locks of fine wool, and have a delicate, thin, and therefore a fine, pinkish transparent skin, free from folds or wrinkles. The wool fibre is very elastic, firm, tender, but soon becomes weak; is elastic in curling and shrinking. The yelk is very easily rendered fluid, and is not tallow-like or buttery, and the wool is easily cleansed. This wool has always been highly prised by manufacturers, but has not been so remunerative as some others to the wool growers, on account of the lightness of the fleece.

ESCURIAL—XERENA ESCURIAL.—The name of a cabana or herd of the Leonese Transhumantes, in Spain, and which was regarded as the best flock in Spain. As in the case of all other Spanish herds, definite information or descriptions of this herd are not to be found. Petri describes them as being long-legged. Thær, in 1825, had samples of the wool sent to him from Denmark, where they had been imported from Spain in 1798, and bred pure until that time; and he says that the Paulars produced a finer wool than the Escurials. At the international exhibition at Paris, in 1855, it was decided that the finest woolen goods were from Spain, and especially from the Escurial wool. All the German States that made importations from Spain, imported more or less Escurials. At the Wool Convention in Leipzig, in 1823, Thær suggested that the Saxon improved Merino be called Escurial. But the Convention would not adopt the suggestion. That class of sheep producing the finest wool, say 1½ inches long, having the greatest density of fleece, and greatest perfection of form, is known at present in Germany as Escurial, regardless of any trace of Spanish-Escurial blood being in the herd or not.

GUADELOUPE.—A Spanish race of powerful corporeal build, and largely imported into Denmark and France, and from the latter country into the royal Prussian stock-flock at Frankenfelde.

INFANTADO.—A Spanish transhumanta cabana. Petri describes them as remarkably powerfully built, producing a highly arched (well and roundly crimped) wool, with a tallowy yelk,—the staple rather long, but not so dense as others. Sheep of this herd were imported into Denmark, Bavaria and Austria in 1789 to 1802.

IRANDO, OR YRANDA.—Are described by Petri as having strong and deep bodies, with short legs. In 1779 fifty-one bucks and one hundred and fifty-six ewes were imported into Saxony to Stolpen.

ITURBIEDE.—Are described by Petri as being very similar to the Yrandas. A stock of bucks and ewes were imported into Saxony, at Lohmen, in 1765.

LEONESE.—The finest flocks in Spain were reported to be those of Leon. They came from La Mancha, out of Estramadura, passed over the mountains of Segovia, and in the plains of Leon became *estantes* or stationary herds.

MERINOS.—All the fine wooled sheep which were imported into the German States from Spain were called Merinos. The chief characteristics are a peculiar fineness of fleece, the wool well and finely crimped, and containing a large amount of yelk. The animals were of medium size; the bucks a peculiarly formed nose, and wrinkled spiral horns. In Spain Merinos are divided into two classes, as Sorians and Leonese.

MONCEYS.—Sheep from the herd of Marshal Moncey, which are said to have been derived from a cross between the Paulars and the Negrettis. In 1815 they were introduced into the royal flocks of Prussia. These sheep were characterized as producing a long, lank, poorly crimped, silken-lustrous wool, and have been used as a basis of card-wool sheep.

NEGRETTI is the name of one of the most celebrated Spanish flocks of the transhumata cabanas. Petri describes them as being low in body, and less stoutly built than the Infantado, Gaudaloupe, &c. But the blood of this herd is to be found in a greater or less degree in almost all the well bred herds of fine wooled sheep in Europe. France introduced them at Rambouillet in 1785, at Malmaison in 1806, and afterward on the estates of Marshals Moncey, Murat, &c. Denmark, in 1798, introduced them at Esserom; in 1765 Saxony imported four bucks and fifteen ewes for the estate at Lohmen; seventeen bucks were taken to Stolpen in 1779, and in 1802 many were imported into Austria. At the time when the Merino or fine-wooled sheep began to receive attention in Saxony, toward the close of the last century, it was believed in the adjoining Austrian provinces that sheep having small bodies, black "tops" of wool, and fully wrinkled, were the most desirable kind of sheep; and this impression became so general, that manufacturers and wool merchants required no more than to see that the sheep possessed these characteristics, when they made purchases of wool. Whilst in Saxony, the object sought by wool growers was to produce a fine staple, and, as a result of this endeavor, the Electoral form became a fixed type for Saxony; at the same time the Austrian breeders directed their energies to produce a black-tipped, wrinkled, small sheep, or the true Negretti type. The *improved* Negretti is now characterized by a powerful, broad body, strong skeleton and large extremities. The thick and coarse skin manifests a great disposition to become folded or wrinkled; the wool is seldom "*high*" fine, but is harsher, less elastic or yielding; the crimps beautifully circular; the staple ranging from two to three inches; the yelk thick and adhesive. The lambs when yeaned are hairy. The modern Negretti is characterized by great weight of fleece, massive and compactly built body, a much less adhesive, but at the same time lighter yelk, and the staple is at least two inches long. A few of the Negretti flocks produce *super* or extra fine wool, but the great majority yield *fine* wool only.

PAULAR.—Petri describes this breed of the Transhumantes as having powerfully built bodies, and judging from samples of wool sent to Thaer in 1825 from Esserom in Denmark, the wool may be classed as "high" fine. A stock from this flock was sent to Rambouillet in 1785, in 1809 to the flock of Marshal Moncey, 1798 to Esserom in Denmark, and the Austrian estates of Holitsch and Mannersdorf.

PERALES.—Were powerfully built; otherwise similar to the Infantados.

VILLA PATERNA.—This is undoubtedly a flock of the *Estantes*. In 1779 twenty-one bucks were imported into Saxony."

It is somewhat singular that such a careful plodding people as the Germans are, who preserved even the ear marks and brands on the horns of the bucks which were imported from Spain, did not preserve a more definite description of the animals themselves. The names of Negretti Infantado, Escurial, &c., are still used on the continent, although less weight is placed on the distinctive appellations to signify different varieties. The name Negretti especially is greatly misused, and applied to sheep of so different type, character and even origin, that I feel obliged to give a historical sketch of merino breeding in general, for the purpose of showing that neither the name Negretti nor any other mentioned above is of particular significance.

In 1846 there was a wool-growers' convention at Breslau, Silesia, at which a classification of sheep and wool was adopted, and at which sheep received the Spanish tribal names that perhaps did not have a single drop of that tribe of sheep in their veins.

The so-called Negretti breed, being quite a new one, originating in Germany, and formed from quite diverse and partly very coarse elements, succeeded only a few years ago in producing middling fleeces, after having been crossed with fine Silesian rams. On the other hand, that old and very valuable Austrian Negretti stock, far-famed for its strong and stoutly constructed bodies, can rarely be found on the continent—not even in Austria—it having become extinct, owing to the different principles of sheep breeding introduced in recent times. There are, indeed, no sheep on the continent which may properly be called thoroughbred or pure-blood Negrettis, and a very few with what an Ohio breeder would call large carcasses with abundance of fine wool. I shall proceed to show from what I learned in Germany of what little value those Negretti, Infantado, Escurial, Paular, &c., breeds were when first imported from Spain into Germany, and what has become of them in modern times.

As merino wool was greatly manufactured and highly prized by English and Dutch manufacturers, the Spanish Government prevented the exportation of sheep by heavy penalties. This is the reason why no other country succeeded for a long time in getting even a small stock fit for breeding purposes.

All Spanish sheep were divided into two different groups—1st, sheep of Leona; 2d, sheep of Lona. The first had a short, close, fine and regularly waved (cloth) wool; they were always carefully bred, in-and-in, and doubtless were the most valuable and finest stock in Spain. Their lambs were hairy and the weakest of them killed immediately after birth. Lona merinos had long, coarser, less waved and consequently less valuable wool; and although their lambs had regular wool staples, without hairs, they must, doubtless, be considered as improved mongrels and were always crossed with Leona rams.

The last fifty years of the eighteenth century and the beginning of the nineteenth comprised the flourishing period of merino breeding and wool production in Spain. Laborte reports that in 1797 the number of sheep was eight millions in Cabanas estantes and five millions in Cabanas transhumantes, while in the year 1827 there was only half the number of sheep in Spain, whose wool was valued at one-third of the wool produced at the same time in Germany. A proof of how greatly wool production decreased till the year 1848 is, that there were imported in England only 106,638 lbs. Spanish wool.

Having given a short historical notice of the origin of Spanish merinos, let us turn to the development of the merino breed in foreign countries, and begin with England. The first importation of merinos into England was in the time of Edward IV., 1461–83. Lord Sommerville and the king himself, who took a great interest in merino breeding, did not succeed in improving the imported sheep, for the English climate and food do not seem to be favorable for the production of fine wool. Many writers are of opinion that the modern Southdown and Leicester breeds owe the abundance and value of their wool to those few drops of merino blood remaining in them for so many years. France received its first merinos under the Government of Louis XIV. (1659), but to no extent of importance until, in the year 1752, the French Ministers Choisseul and Fruduine favored the production of wool by importing great numbers of Spanish merinos (from where is unknown.) Daubenton, the first French writer on sheep (*Instructions pour les bergers et pour les proprietaires des troupeaux, Paris*, 1820), who himself purchased and imported Spanish merinos, laid the foundation of that old and celebrated establishment at Naz. Louis XVI. received as a present 334 ewes and 42 rams from the King of Spain, selected from the Cavanas, Negretti, Escurial and Paular. The only thing we know about these sheep is that the wool of all the animals was very equal; but it seems that those Negretti, Escurial and Paular sheep had small carcasses, for the chief principle of breeding in the Imperial establishment at Rambouillet, where those sheep were carried to, was to get better carcasses, while the wool might have been considered to be fine enough. We read that many years afterwards, in consequence of the principle of breeding, and of those animals being abundantly fed, Rambouillet rams were considered to be the largest ot any sheep, and the King was pleased to select the two largest of them to draw the carriage of the Dauphin. In the meantime, it is said that the wool, being formerly of a fine cloth description, has become a long and less fine combing one. About the same principle as to breeding for abundant combing fleeces was followed by all French traders, and a very good combing wool was produced in France, such as the soft and silk-like Mauchamp, Gerolles, &c. The number of sheep increased greatly, for in the year 1850, there were about 33,151,400 merinos (most likely not quite pure blood) in France, and produced about 80,000,000 lbs. of wool. Notwithstanding, France does not pay any further great attention to sheep, and there are scarcely any animals of a particular value for breeding purposes; but we owe to the intelligence of French breeders the first valuable scientific investigation into wool and merino breeding, such as Matthieu de Dombasle, Fernauœ, Tessier, Poloneau, &c., but especially to Perault de Fotemps, who published in the year 1824 his *Nouveau traite sur la laine et sur les moutons, Paris*, 1824—a most interesting and instructive treatise, in which he gives very valuable rules for producing fine wool, with quite a correct statement of the physiological relation between wool and skin, which have been most successfully followed by modern sheep breeders on the continent.

German sheep breeding was in rather an inferior position till the year 1748, although Frederick William I., King of Prussia, tried to improve native German sheep *(Deutshe geest shaf)* by crossing with imported Turkish and Danish rams. Every farmer was obliged by law to breed sheep under a penalty of 1,000 ducats. Nobody was allowed to sell wool to a foreign country while the Government kept a wool monopoly; nor was anybody allowed to sell sheep before shearing. Before the Seven Years' War, Silesian wool was considered the finest in Germany, and Frederick the Great, understanding the great value of merino sheep for wool production, purchased, in the year 1748, 53 Spanish rams, which, however, without being of any use, died of foot-rot and scab. Saxony afterwards (1765) imported a lot of 128 ewes and 92 rams, selected from the cavanas—Alfaro, Bijar, Accolia, Negretti, Iturbieta and Xerena Escurial; and in the year 1770 again 176 ewes and 94 rams from Yranda, Cuenta, Villa Paterna and Negretti. The offspring of these flocks were sold at very low prices; consequently they soon spread over all Saxony, and in a short time increased greatly. At the end of the eighteenth century, Saxon wool, which was generally called Electoral (derived from the Electorate Saxony), gained the particular attention of English and Dutch manufacturers. In the year 1765, Maria Theresa, Empress of Austria, imported a great number of Spanish sheep, and founded the Imperial establishment at Mannersdorf and Holitzsch. We have no sure information from what Spanish cavanas these sheep were taken, but one of the most credible authors on these subjects, Rudolph Andre (1816), says: "I can prove that Austria got quite as fine a flock from Spain as Saxony. Wool samples, cut from Austrian sheep, perfectly resemble those cut from Saxon sheep." A short time afterwards, pure bred merinos were to be found in almost every part of Germany, partly imported from Spain and partly purchased from Austria and Saxony. The first stage of German merino breeding was, of course, a very empirical and experimental proceeding; sheep farmers had neither proper knowledge of the valuable qualities of a fine combing or cloth wool nor any idea about the right principles of breeding. The first results were, therefore, not very gratifying. Veterinary science was still in its infancy, and a great many valuable animals died from foot-rot and scab. Notwithstanding this, the high prices for fine wool still animated merino breeders to continue, and while people in Saxony paid great attention to producing fine wool—*i. e.*, wool the fibres of which were of small diameter, neglecting other valuable qualities, Austrian breeders, on the contrary, strove exclusively to improve the carcasses of their sheep. The result was that by 1802 Austrian and Saxon sheep, originating from the same cavanas in Spain, differed so evidently that the Austrian breed was generally called stout-wooled Infantado, while Saxon sheep were under the name of fine-wooled Electorals. Both Infantado and Electorals are, therefore, names invented in Germany to signify those very different races.

The principle of breeding a fine wool, no care being taken to improve and strengthen the body at the same time, caused a general tenderness and delicacy in Saxon sheep; while Austrian sheep became coarse and equal. Infantado and Electoral breeders began to feel the great want of information with regard to the qualities of wool which render it valuable in the market, and at the same time pay the breeder. In 1825, Albert Thaer, therefore, called a meeting of wool merchants, manufacturers, and farmers, at Leipzig, for the purpose of clearing and sifting those very confused opinions on these matters. The result of that meeting, and subsequently several very instructing exhibitions at Brunn, Vienna, &c., of fleeces, was the settling of terms to be used regarding the fleece, and equally adopted by both manufacturers and breeders. The names Infantado, Negretti, Escurial, and Electoral, were agreed to be used as follows:

Infantado to signify large, deep-chested sheep, with long wool, (combing,) staples open; Negretti, sheep of the same exterior, with short wool closed staples, and large wrinkles; Escurial, for fine-wooled, close-stapled sheep, with fine flexible wrinkles, and stout bodies; finally, the name Electoral was to be used for those fine small sheep, bred exclusively for producing as fine a wool as possible. Although the nomenclature agreed upon could not strictly be followed, the result of that meeting was a mutual understanding and instruction, and an agreement on matters which had been doubtful until that time, and consequently the basis of a great progress in producing valuable and at the same time heavy fleeces. Since that time people understood that the chief principle of breeding is, the selecting and matching of animals which, in our idea, approach nearest perfection. The terms "pure blood" and "inheritance," were thoroughly discussed and correctly settled. By comparing certain observations and facts during their experience in merino breeding, farmers became convinced that the pure blood, in the general meaning of the term, is of very little practical use, if not always prevented from varying by a careful selection. On the other hand, races are of no use unless they present a desirable material for new amalgamations by slight variations. "In Saxony," says Charles Darwin, "the importance of that principle of selection in regard to merino sheep is so fully recognized that men follow it as a trade; the sheep are placed on a table and are studied like a connoisseur," &c. Sheep breeders understood that sheep breeding was too valuable and particular a business to be successfully done without being thoroughly and carefully studied, and that wool sorters, without knowledge of the animal body and zoological principles of inheritance and variation, could only make a pretence of discharging their duties. Rudolph Wagner, therefore, published his new method of breeding in groups *(gruppenzuchtung,)* following a system of classification concerning the qualities of a fine cloth wool only. Afterwards, the brothers Frederick and Edward Kaunitz followed another system more generally applicable, tending more to improve the size of body and the weight of the fleece, and it must be confessed that Germany owes a great deal to the honesty and cleverness of these two masters in sheep-breeding, as well as to their disciples, under whose skilful hands German merinos underwent such an important change.

Let us now look back a few years to find the first origin of that Austrian Negretti breed, which began to exert a great influence on nearly all important sheep-breeding in that time. The Baron Von Geisslern, a gentleman much interested in sheep-breeding, beginning with a stock of two rams and sixteen ewes, which he received as a present from the Empress Maria Theresa, and afterwards purchasing a few hundred sheep more from the same stock at Mannersdorf, founded his flock at Hoschlitz, in Bohemia, and, by the principle of producing abundance of middling fine wool on large carcasses, he bred quite a different race of sheep from Austrian Infantados and Saxon Electorals, being neither an Austrian framed breed nor a Saxon fine-wool breed, but being a medium, between both. He did not gain the attention of sheep-breeders until his stock was quite uniform in the qualities of wool, and perfectly constant in the hereditary transmission of qualities, both in fleeces and frames. Baron Von Geisslern called his flock, in consequence of its character being so very different from Austrian and Saxon breeds, and according to the name settled for sheep of a similar style at Leipzig, Negretti, although his flock had not in the least originated from the cavana of the Conde Negretti. This is the real origin of those celebrated Austrian Negrettis, a name given to a new German breed, which was originally composed from many different Spanish cavanas.

While the Baron Von Geisslern succeeded in breeding his flock in complete uniformity, the disease known as vertigo began to render Saxon and Silesian rams perfectly unfit for breeding purposes; on the other hand, the brothers Kaunitz appreciated the want of stout, deep-chested, short-legged rams, with heavier, but in the meantime valuable fleeces of cloth wool, not only for the purpose of improving poor constitutions and light fleeces, but more to freshen the blood of those delicate and sickly Electorals. Having seen the great value of that Hoschlitz Negretti blood, and being particularly acquainted with the Baron's principle, Frederick and Edward Kaunitz, founded a few establishments in Mecklenburg and Pomerania, from ewes and rams purchased in Hoschlitz. These establishments were for a long time as valuable as the orignal one at Hoschlitz, but of late, from being neglected, the system of breeding was greatly varied. The flocks were afterwards crossed with some Silesian rams, and are now very far from being as valuable as many years ago. Austrian, Mecklenburg, and Pomeranian Negrettis became, therefore, most valuable and greatly desirable breeds, by the use of which the brothers Kaunitz and their pupils succeeded in producing a greater abundance and a more valuable fleece than ever the Hoschlitz sheep originally possessed. They improved the form of the sheep, strengthened the constitution by a very rational system of matching, and in this way checked the ravages of the disease. Silesian and Saxon wool still remained the finest in the English market, and those Negrettified Electorals became a very paying breed, both in quantity and quality of wool. We may instance Kuchelna (Prince Lychnowsky), Chrzelitz (Heller), in Silesia; Thal, near Oshasz, (Gadegast), Leutewitz Lothain (A. H. Staiger), in Saxony, and Moeglin (A. P. Thaer), Mark of Brandenburg. While that action and successful struggle for the "golden fleece," both literally and practically, took place in Saxony and Silesia, we are bound to say that Austria, as well as Mecklenburg and Pomerania, have almost entirely lost all claims to it, by endeavoring to improve the quality of the fleeces, and reduce the stoutness and size of the frame. Austrian sheep now suffer from the same delicacy of body, producing fine fleeces, as Saxony and Silesia many years before, and one could hardly believe that the Austrian and Mecklenburg Negrettis of the present time are a pure-bred offspring of that old short-legged, deep-chested, long-framed Austrian Infantado.

From the foregoing it will be seen that all German breeds have originated from quite equal Spanish sheep, although taken from different cavanas, but that after having been imported into Germany they varied so greatly that an offspring so opposite as Infantado and Electoral was produced. The perfect insignificance of Spanish names for German breeds, and the entirely German origin of these so-called pure Negretti breeds as an offspring of Hoschlitz, which must really be considered a variety produced by intentional selection from a stock already greatly varied, must be apparent to all. On the other hand, there have been pure-bred Hoschlitz Negretti sheep in Mecklenburg and Pomerania, and if the owners of them had continued to breed with the same care and intelligence as their master, the Baron Von Geisslern, those breeds would, doubtless, now still be bright stars among German sheep-breeders, which they certainly are not any more. Negretti breeders failed to follow perseveringly their original principle of producing fine and heavy fleeces, and Negretti breeding became indeed a mere sale business of those sheep of reputation, the Negrettis in Mecklenburg and Pomerania, whose climate and food have very little tendency for producing heavy fleeces of a fine and valuable wool for the higher manufacturing purposes, had, through the two Kaunitz's, earned a reputation, and a great many Mecklenburgian and Pomeranian farmers, wishing to make use of the reputation, published, in competition with the flocks of Hoschlitz, their sale of pure blood, thoroughbred, or origina Negretti lambs and ewes. It is rather astonishing how many of those "pure blood, thoroughbred, or even original Spanish Negrettis," as their owners please to call them, were rising at once like mushrooms, in a country whose inhabitants never evinced any sign of interest for high merino breeding. Mecklenburg never imported pure Spanish blood, but by crossing their native German sheep with Rambouillets and Austrian Infantados, &c., had produced a merino-like, large framed, combing wool mongrel (Boldsbuck), an animal, so far as blood is concerned, composed of most heterogeneous elements, chiselled to a fashionable extent by a few drops of pure Negretti blood, baptised with a proper business name, which succeeded, indeed, for a time to partake of the lucky profits of the Negretti sales. Many farmers believed still that those so-called original Negrettis were indeed a pure-bred offspring from the celebrated cavana of the Conde Negretti. The inferior utility of those breeds, however, was, of course, soon recognized by the great coarseness and inequality of wool in the offspring, and the very inferior stapling of the fleeces threatened to reduce the breed to the low standard of the Infantado breed. The well-founded complaints of the wool merchants and manufacturers, and other competent authorities, did not fail to animate the Negretti breeders to cross again, and of course with fine Silesian rams. They succeeded, indeed, in improving the fleeces, but, at the same time, entirely spoiled the frame. Notwithstanding they attended well to their business, and, for showing large carcasses with those, now obtained finer fleeces, Negretti breeders began a system of fattening with the most powerful food, such as peas, beans, wheat, oats, and even rice meal. The benefit of the business, of course, was a double one; on the one hand, the small roof-like shoulders became rounder, and the fleeces, on the other hand, grew heavier through the extreme abundance of grease.

This is a true and impartial sketch of those modern Negretti breeds, so far as I could learn from the best sheep-breeders, whose acquaintance I made at the Fair at Stettin, and from Mr. Newhouse's letter. The best qualities, both of fleece and frame, will never be transferred to the offspring, if produced in the parent only by pampering with powerful food. The only one establishment where a rational system of breeding sheep, reared with moderate food, and pays by its wool and carcass has been followed for years, and which, by all intelligent sheep-breeders, is now acknowledged to be the very *best, is Mr. H. A. Staiger's flock, in Saxony.* Mr. Staiger's flock was for some years the finest on the continent, following, of course, the principle which at that time paid best. Afterwards Mr. Staiger succeeded in improving the frames of his sheep by the principle of the Southdown breed, and united the same with Perault de Jolewps' principle—namely, to breed a fine wool on a thin skin. These two principles may well be united, because a thin skin is as necessary for the formation of a stout, large body, as for the production of a fine wool. By following this principle, the breeder is enabled to obtain close and abundant fleeces by breeding a closely organized skin, and by rendering the same equally on every part of the body, he produced an equal, fine, and regularly stapled wool all over the body. After having studied the subject and having seen some of the most celebrated merino breeding establishments on the continent, I feel obliged to say that Mr. Staiger's flock is not only the best on the continent, but still the most valuable for breeding purposes. That breed has a most extraordinary faculty of transmitting its qualities to the offspring in a degree quite superior to any other merino breed.

There cannot be the slightest doubt that if breeders would follow a reasonable and useful proceeding they will in a short time produce far better sheep than those on the continent, because experiments already made go to prove that the food and climate of the United States are far preferable for merino breeding; notwithstanding, they may still require imported material as long as there is not produced a certain uniformity in wool and frame, united with a reliable hereditary transmission of qualities, which can be obtained only by continuing the same principle for years. Until such a state is universal, breeders will always have far more benefit from importing good stocks than from amalgamating inferior materials. The way of producing more desirable forms by amalgamation is by a skillful selection, but being certainly the slowest, it is consequently the dearest method, through the great loss of time. Sheep breeders must endeavor to obtain a perfect knowledge of those qualities which render the wool valuable for manufacturing purposes. Exhibitions of clean washed fleeces, as well as in grease, such as that made by George W. Pollock, at the Ohio State Fair in 1864, would be of great benefit in promoting that result. Many important questions in merino breeding, concerning which many of the breeders are still in doubt, have been discussed and successfully answered by German authorities, in the works of Weckherlin, Mentzel, Rhode, &c. The right principles of classification, have also been tested by experiments in a way that merino breeding can now be considered no longer in a state of infancy, but has become a perfect science, cultivated and promoted by scientific and practical breeders in Germany for upwards of sixty years. In the words of Charles Darwin: "Not one man in a thousand has accuracy of eye and judgment enough to become an eminent breeder. If gifted with these qualities, and he studies his subject for years, and devotes his lifetime to it with indomitable perseverance, he will succeed and make great improvements; if he wants any of these qualities, he will assuredly fail."

Berlin is the great wool market of Prussia, and next to it is Breslau, in Silesia. The wool market commences on the first of June at Breslau, and continues during several days; wool merchants and manufacturers congregate there from all parts of Europe, and even England and France, to purchase the fine wools. The fine wools sold in Berlin, as a general thing, are manufactured there—but those sold in Breslau go to France and England. The greater part of the extra fine wool sold in Breslau is from Saxony. von Wehrman, of the Ministerial Bureau of Agriculture of Prussia, kindly furnished me the following statistics of the wool sales in Prussia for 1862–3–4, being the latest at his command; from which it will be seen that Prussia offers an average of about 30,000,000 pounds of wool for sale. (See Table on page 79.) M. von Elsner, of Gronow, Kalinowitz, Silesia, a very estimable gentleman, whose acquaintance I was fortunate enough to make on the Fair grounds, estimates the number of sheep in Prussia at 17,500,000, and the average weight of fleece at 2¾ pounds* of cleansed wool, making an aggregate of 48,125,000 pounds.

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* See Ohio Agricultural Report for 1864, page 326.

Prussian Wool Markets for 1862–3–4.

TOWNS.	1862.									1863.				
	Extra fine wool. cwts.	Fine wool. cwts.	Middle wool. cwts.	Ordinary wool. cwts.	Total.	Extra fine wool. Thalers per cwt.	Fine wool. Thalers per cwt.	Middle wool. Thalers per cwt.	Ordinary wool. Thalers per cwt.	Ex. fine wool. Cwts.	Fine wool. Cwts.	Middle wool. Cwts.	Ordinary wool. Cwts.	Total.
Berlin.....	....	19,000	61,810	30,000	110,810	....	78 to 88	65 to 77	44 to 64	1,500	20,000	70,000	40,000	131,500
Breslau.....	3,000	18,000	30,000	8,000	59,000	98 to 106	88 to 95	72 to 85	43 to 73	3,000	18,000	32,000	8,000	61,000
Coblentz ...	71	273	584	....	928	55¼	46⅓	39¾	....	....	67	754	....	831
Konigsberg.	....	350	4,000	2,000	6,350	....	76 to 82	70 to 73	62 to 68	....	1,250	5,000	1,250	7,500
Landsberg..	....	5,000	6,800	2,200	14,000	....	70 to 79	62 to 69	46 to 60	....	4,500	6,500	3,075	14,075
Magdeberg .	....	....	234	14	248	....	....	48 to 52	38 to 40	....	....	522	22	544
Muhlhausen	....	400	600	200	1,200	....	60 to 65	50 to 56	45 to 50	....	200	800	400	1,400
Paderborn ..	120	341	1,882	210	2,553	72 to 75	66 to 72	46 to 52	40 to 45	320	379	739	697	2,135
Posen	392	10,304	9,959	284	20,939	80 to 82	78 to 80	72 to 76	52 to 55	....	6,922	13,681	982	21,585
Stettin	2,370	9,675	5,049	717	17,811	74 to 87	68 to 73½	54 to 67½	33 to 53½	1,334	8,461	4,567	623	14,985
Stralsund...	....	....	6,784	....	6,784	....	....	63 to 69	....	....	....	8,194	....	8,194
Dusseldorf .	....	104	236	416	756	....	55 to 63	45 to 51	30 to 36	....	98	212	465	775
Elbing	....	25	175	....	200	....	70 to 72	60 to 68	....	....	....	40	....	40
Bromberg ..	....	....	80	....	80	....	....	60 to 80	....	....	....	13	....	13
Total.....	5,953	63,472	128,193	44,041	241,659	....	....	....	....	6,154	59,877	143,022	55,514	264,567

Prussian Wool Markets for 1862–3–4—Continued.

Towns.	1863—*Continued.*				1864. QUANTITY.								
	Extra fine wool. Thalers per cwt.	Fine wool. Thalers per cwt.	Middle wool. Thalers per cwt.	Comm'n wool. Thalers per cwt.	Extra fine wool. cwt.	Fine wool. cwts.	Middle wool. cwts.	Comm'n wool. cwts.	Total cwts.	Extra fine wool. Thalers per cwt.	Fine wool. Thalers per cwt.	Middle wool. Thalers per cwt.	Common wool. Thalers per cwt.
Berlin.	80 to 90	70 to 80	60 to 70	45 to 60	....	8,000	58,000	30,000	96,000	106 to 120	77 to 87	66 to 76	48 to 65
Breslau	102 to 120	88 to 100	75 to 86	42 to 73	3,000	16,000	30,000	6,000	55,000	....	95 to 105	74 to 92	55 to 80
Coblentz.	....	61½	50	....	....	65	378	....	443	....	68½	63½	....
Konigsberg.....	....	73 to 84	68 to 72	60 to 66	....	3,500	1,500	....	5,000	....	65 to 77	60 to 65	....
Landsberg	....	71 to 80	63 to 70	48 to 62	....	4,500	6,500	3,500	14,500	....	71 to 79	63 to 70	50 to 62
Magdeburg	....	....	47 to 52	36 to 39	....	....	332	....	232	....	....	54 to 56	....
Muhlhausen	....	60 to 65	52 to 59	46 to 52	....	400	1,000	500	1,900	....	64 to 69	60 to 64	50 to 60
Paderborn	73 to 75	70 to 72	50 to 55	40 to 48	425	520	1,002	176	2,133	71 to 73	69 to 71	60 to 63	49 to 57
Posen	....	80 to 90	65 to 75	50 to 55	....	10,191	11,265	996	22,451	....	72 to 80	67 to 71	53 to 63
Stettin	77 to 81½	67½ to 76	56 to 67	42 to 55	....	511	15,164	62	15,737	....	64 to 82	54 to 63	42 to 53
Stralsund......	....	....	62 to 70	....	....	....	6,650	....	6,650	....	....	65 to 70	....
Dusseldorf......	....	60 to 70	50 to 56	36 to 46	....	75	170	266	511	....	67 to 70	60 to 63	....
Elbing	....	....	60 to 65	....	....	....	83	....	83	....	....	58 to 60	....
Bromberg	....	....	60	....	....	....	....	....	....	....	....	....	....
Total.......	....	....	....	....	3.425	43,761	131,944	41,500	220,630	....	....	....	....

CHAPTER III.

CLIMATOLOGY, GEOLOGY, POPULATION, ETC.

By its geographical position, Germany lies within the northern temperate zone; between the isothermal* lines of 8 and 13, between the isotheral lines of 16 and 23, and the isocheimal lines X 3 and — 4°, the southern portion (the Illyrian provinces and Welsh Tyrol) only extending to the isothermal of 14° Or, reduced to the American standard, it lies between the isothermal of 46° and 55° Fahrenheit, between 61° and 73° isotheral, and 37° and 24° isocheimal.

So far as the rain fall is concerned, it is situated in the northern belt of continuous rains, or rather in the province of summer rains, the most southern portions only touching the belt of autumnal rains. The average or mean number of rainy days is 131 in southern Germany, 154 in northern Germany, and 170 in the Netherlands. The greatest amount of rain fall is in the Tyrolean Alps, where the average reaches 100 inches per annum, but decreases rapidly toward the north; at the foot of the Alps it ranges from 30 to 25 inches; in the Bohemian forests, Fichtelbirge, Thuringian forests, Hartz and Erz Mountains, and the Sudetes, 25 inches; in the Netherlands 30 inches, and the remainder of Germany 20 to 25 inches in the west, and 15 inches in the east.

The "heated term" is from the 20th to the 30th of July, and the greatest cold during the first half of January. From many years' observation it is ascertained that, as an average, rye requires fifty-six days, winter barley fifty-one, spring barley twenty-five, oats twenty-five, and grapes four months, from the period of blooming until ripe for harvesting; harvesting takes place twelve to fourteen days earlier in western than in eastern Germany, and is four to five days later for every degree of latitude northward; and in the same latitude is ten days later where places have an elevation of 1,000 feet above the plain.

The prevailing winds in Germany are W. S. W. and N. E., and the least are from the S. E. The W. S. W. are moist and generally bring rain, cloud the sky, and cause a sinking of the barometer, whilst the thermometer rises; the N. E. winds have the contrary effect. In northern Germany the 24th of June is 17½ hours long; but twilight, the most agreeable and interesting portion of the twenty-four hours, lasts till nearly midnight. In summer time this twilight is light enough for reading or writing without the aid of artificial light.

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* ISOTHERMAL LINES.—Lines of equal temperature; a term applied in physical geography to lines connecting all those places on the surface of the globe which have the same *mean* temperature. Lines drawn through places having the same summer and the same winter temperatures, are termed, respectively, iso-*theral* (summer) and iso-*cheimal* (winter) lines; while lines drawn through places having other common temperatures receive other appropriate names.—*Hoblyn's Dictionary of Scientific Terms.*

The kingdom of Prussia is embraced between the isothermal lines of 7½° and 12½°, the principal portion lying between 7½° and 10°. The greatest summer temperature at Berlin is 103° F. in the shade, at Coblentz 95°, and at Breslau 88°. The greatest cold takes place during the month of January, when it ranges from 5° F. (5° below zero) to 24° (or 24° below zero); the average summer heat ranges in the various portions of the kingdom from 60° to 66°. All the streams are ice-bound annually, except the Rhine, which is ice-bound, as an average, only once in two years. The Elbe is ice-bound an average of 62 days—the maximum period being 123 days; the Oder 73 days average, maximum 147 days. The longest period during which the Rhine was frozen was 75 days.

The rain fall in the kingdom ranges from 15½ to 28 inches, and the number of rainy days ranges from 101 to 146, according to locality; in the eastern portion the most rainy days occur in summer, and on the Rhine the most in autumn. The prevailing winds are west, southwest, and northwest; less prevalent are north and northeast, and very seldom are there north or south winds. The change of winds is from south to west with the course of the sun. The westerly winds invariably bring moisture, whilst the east winds are very dry.

GEOLOGY OF PRUSSIA.

Rock formations, or masses of rock *in situ*, are found as a general thing in the mountainous districts only. Railway cuttings or river banks expose very few strata. Indeed, except along the Elbe and Rhine, I do not at this moment remember of having seen any. In upper Silesia we find the Muschelkalk and Jurakalk predominating; Galena, Cadmia, (a silicate of zina) iron ore, and coal also abound. In Thuringia and the Westphalian Weser mountains, the new red and keuper sandstone abound, as well as muschelkalk. Near Halle we find porphyry and coal; in Mansfeld massive layers of slate. The approaches to the Harz mountains have the same formations, but have granite in addition. The Rhenish Westphalian mountains are composed mainly of clay, slate and grauwacke. Between the Rhine and Moselle and the sources of the Erft, Roer and Primm, the slate formation of the Eifel is ruptured by a number of basaltic and volcanic formations; these latter formations are also found on the right bank of the Rhine, of which the "Drachenfels" is a notable formation of basalt. Then there is a formation of metamorphic or transition limestone, stretching to the west in the vicinity of Aix la-Chapelle. Brown coal (lignite?) accompanies the course of the Erft; new red sandstone appears on the Saar; muschelkalk on the Moselle; and the districts through which the Ems and Lippe flow, through

Westphalia, abound in chalk. Isolated formations or strata of limestone are found in Mark Brandenburg, near Rüdersdorf, and in Pommerania, near Kammin.

SOIL OF PRUSSIA—GOOD, MEDIUM, SANDY AND ROCKY.

These three varieties exist in about equal proportions in the aggregate of the kingdom, but are very unequally distributed. The regions through which the Memmel and the Pregel flow, the immediate region of the Weichsel, a tolerably broad belt along the Pommeranian coast, the neighborhood of the Madue and Plenar Sea, the lower region of the Oder and Peene; the Wartha and upper Oder regions, on the left bank of the Oder to its junction with the Katzbach, and from the foot of the mountains to the Lausitz Neisse; the entire region of the Saale and its tributaries, the Westphalian region of the Weser, the lower valley of the Rhine, and the region between the Ruhr and Lippe, have a preponderance of good soil. The low coast grounds, in fact all of the immediate coast of East Prussia, as well as of the coasts of the East Sea, the Pommeranian and Prussian elevations, with their north and south depressions, the Polish-Silesian elevations, a wide belt from the lower Katzbach, over the Bober and the Lausitz Neisse, until beyond the Spree, including the greater portion of Mark Brandenburg, is a vast plain of sand, with an occasional strip or narrow belt of good soil intervening. The Silesian mountains, the Sourland mountains, the Eifel, and the Dog's Back, (*Hundsrück*) are covered with a rocky, unproductive soil. About two-thirds of the area of the province of Prussia has a *good* soil. A most excellent and productive soil is in the Weichsel valley; about one-third is sandy soil, and a very small portion only is medium. The elevations are mostly sand and medium, but the valleys have excellent soil. A very productive soil is in the vicinity of Stargard Pyritz and the Valley of the Oder in Pommerania. In Posen two-thirds of the area is medium and sand, but good soil along the Weichsel and other streams. In the province of Saxony the area west of the Elbe is uniformly good and productive soil; on the east of the Elbe sandy, and toward Thuringia a medium soil. In Westphalia, between the Ruhr and Weser, the soil is good, but in the north it is very sandy, and in the south barely medium and rocky. So far as the Rhenish provinces are concerned, they have in the aggregate one-third good, one-half rocky, and one-sixth medium soil.

Notwithstanding this rather discouraging view of the agricultural resources of Prussia, her soil is *well* managed, and in the aggregate, fully if not more productive than our far richer soils here in Ohio. Then, too, Prussia has mineral resources which she is not neglecting.

The kingdom of Prussia embraces an area of 108,825,650 morgens,* which is divided into 53½ per cent. of plow land, vineyards and garden land; 10 per cent. of meadow; 8 per cent. of pasture land; 26 per cent. of forest land, and about 2½ per cent. of absolutely waste land, so far as agricultural purposes are concerned.

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* A Prussian morgen is five-eighths of an acre English.

POPULATION.

The last published census of Prussia was taken in 1858,[**] at which time the population amounted to 17,740,000.

A.—GERMAN TRIBES—	*a*, High Dutch[***]	63,000
	b, Low Dutch[†]	8,970,000
	c, Middle Dutch[‡]	6,044,000
B.—SCLAVIC TRIBES—	*a*, Lechen[****]	2,096,000
	b, Czechen[††]	55,000
	c, Wenden[‡‡]	109,000
C.—LETTEN—	Lithunians	140,000
D.—WALLOONS—	Walloons and French	21,000
E.—HEBRAISTS—	Jews	242,000
Total		17,740,000

German tribes	85·60 per cent.
Other tribes	14 40 "

The population of Prussia is furthermore divided into 3,691,725 families; and there are

Males over 14 years of age	5,739,232
Females " "	5,861,470
Males under 14 years of age	3,096,383
Females " "	3,042,828
Total	17,739,913

Showing an average of 4 81-100 individuals to each family. Of the men 2,921,394 are married, and there are 770,331 families of which the father is deceased.

Of the entire population there are engaged in

A.—AGRICULTURE EXCLUSIVELY—

a. Leaseholders or owners of estates	4,162,874
b. Male and female farm laborers and servants	951,321
c. Day laborers	764,242

[**] Since my return and the above was written, the Census of December 8, 1864, has been kindly sent to me. The population then was 18,975,718 civil, 279,421 military on a peace footing, but the effective war military force is 742,498, making an aggregate of 19,256,139. Of these 11,592,451 were Protestants, 7,115,851 Catholics, 269,751 Jews, and the remainder of diverse denominations.

[***] Includes the old Goths, Allemannu, Swabians and Bavarians.

[†] Includes Saxons, Friesians, Holsteiners and Westfallons.

[‡] Including Francs, Hessians, Thuringians and Silesians.

[****] Including Poles, Kassubians, and Moscoviers.

[††] Including Bohemian tribes and Moravians.

[‡‡] Including Welstens, Bodritens, Serbens, &c.

B.—AGRICULTURE PARTIALLY—

a.	Leaseholders or owners of estates	1,981,523
b.	Male and female farm laborers and servants	122,452
c.	Day laborers	73,347
		8,055,759

Or 45 41-100 per cent. of the entire population.

There are employed in

a. MINING—Males		64,754	
	Females	196,281	
			261,035
b METTALLURGY—Males		59,837	
	Females	125,297	
			185,134
c. SALINES—Males		2,253	
	Females	51,455	
			53,708

The land in private hands is parcelled as follows*:

In tracts of less than five morgens	1,099,161	tracts.
In tracts of 5 to 30 morgens	617,374	"
In tracts of 30 to 300 morgens	391,586	"
In tracts of 300 to 600 morgens	15,076	"
In tracts of more than 600 morgens	18,289	"
	2,141,486	

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* The several Provinces of Prussia contain an area of 108,825,650 morgens.

This is divided as follows:

1.	In Court-yards, gardens, &c., of less than one morgen	1,074,644.3
2.	Streams, roads, railways, parks, and other public purposes	4,593,466.7
3.	Plow land	55,146,079.4
4.	Gardens	732,218
5.	Meadows	10,209,419.5
6.	Pasture	8,138,356.2
7.	Forests	26,800,028.9
8.	Lakes and ponds, fens and marshes	1,740,817.5
9.	Desert or waste	143,703.4
10.	Absolutely unproductive	246,916.9
	Total	108,825,650.8

The Crown, Church, and School Lands, are exempt from taxation, as well as those marked number 2, 8, 9 and 10 above; the remainder, amounting to 91,696,504.8 morgens, excepting town lots, yield to the Government an annual revenue of 10,000,000 thalers, —or in about the same proportion as if the real estate of Ohio were taxed $4,000,000, or near about twice the amount it now is taxed for *State* purposes*.

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* The total State taxes of Ohio for 1865, were $5,668,367.48, of which amount the lands (outside of real estate in towns) paid $2,642,558.59, and the live stock paid $502,603.37, making in the aggregate of land and live stock $3,145,161.96 paid into the State Treasury.

It may not be improper at this point to present a condensed statement of the financial resources and expenditures of the Prussian Government.

RECEIPTS.

I. The Minister of Finance collects:

a.	**Taxes on forests and domains**	**11,213,484**	**Thalers.**
b.	**Sales of forests and sales of Crown lands**	**1,000,000**	"
c.	**Direct taxes**	**31,511,632**	"
d.	**Indirect taxes**	**37,207,533**	"
e.	**Monopoly on salt**	**9,185,810**	"
f.	**Lotteries**	**1,337,900**	"
g.	**Marine Commerce**	**500,000**	"
h.	**Bank of Prussia**	**947,000**	"
i.	**Cash**	**71,170**	"
k.	**Administration**	**716,404**	"
	Total	**93,690,933**	

II. The Minister of Commerce, Industry and Public Works, collects as follows:

a.	**Administration of Post-office, Laws and public journals**	**12,692,500**	**Thalers.**
b.	**Telegraphs**	**1,241,300**	"
c.	**Crown manufactures (Porcelain, &c.)**	**238,000**	"
d.	**Miscellaneous**	**203,090**	"
e.	**Salt works, mines, quarries, &c**	**12,924,987**	"
f.	**Railroads**	**16,490,686**	"
	Total	**43,790,563**	

III.	**Minister of Justice collects**	**10,518,680**	"
IV.	**Minister of the Interior**	**678,575**	"
V.	**Minister of Agriculture**	**965,232**	"
VI.	**Minister of Public Instruction, Medical affairs, &c**	**103,072**	"
VII.	**Minister of War**	**646,904**	"
VIII.	**Minister of Marine**	**44,560**	"
IX.	**Minister of Foreign Affairs**	**10,255**	"
	Annual dues from Hohenzollern	**265,257**	"
	Total State Receipts	**150,714,031**	"

EXPENSES.

A.	**I.**	**Minister of Finances**	**13,198,297**
	II.	**Minister of Commerce, Industry and Public Works**	**33,023,513**
B.		**Expenses for the Crown, Legislature, and Railway debt**	**17,068,860**

C. State Administration:

I.	**Minister of State**	**353,075**
II.	**Minister of Foreign Affairs**	**976,510**
III.	**Minister of Finance**	**6,613,815**
IV.	**Minister of Commerce, &c**	**6,761,288**
V.	**Minister of Justice**	**11,718,100**
VI.	**Minister of Interior**	**5,566,279**
VII.	**Minister of Agriculture**	**1,828,292**
VIII.	**Minister of Public Instruction, &c**	**4,262,952**

IX. Minister of War	39.496,561 Thalers.	
X. Minister of Marine	1,373,143	
Total ordinary expenses		142,475,142
Extraordinary expenses		8,124,022
Total		150,599,164

The average size of a farm, according to the number of proprietors, would be eleven morgens, or nearly seven acres; and as an average, 625 tillable acres give regular employment to 86 persons.

The question of labor has caused many sanguinary battle fields, in the course of the world's history. It was the labor question which caused the French Revolutions of 1789 and 1848; it was the same question which caused the Rebellion in the United States in 1861, and German rulers must be more sagacious than I am willing to believe them to be, if they can prevent the labor question within the next decade from inaugurating one of the most bloody struggles that Europe has witnessed for centuries.

The custom in Germany for centuries was to furnish the farm laborers a hut or house for his family and the necessray fuel, clothing and provision. When the German system of slavery was abolished, the landlord, in addition to the above, paid the laborer a mere pittance in money, say from 10 to 15 cents per diem, for an adult male, and women and children, in proportion to their ability to labor. At the time of the French Revolution of 1848, the German laborers became restive and demanded their entire pay in money, and requested the privilege of purchasing their fuel, clothing, &c., in the cheapest market and for cash, and to lease or rent such tenements as they saw proper or could afford. These requests were not granted, but some modifications in the relation of the employer and employed were made, which, for the time being, served to quiet the laboring classes. The Prussian Government then ordered an investigation to be made in order to ascertain the cash value of what the laborers received in the form of rents, supplies, &c. The following table presents a summary of this investigation; taking as the basis of calculation that a family consits of a husband, wife, and three children:

Provinces.	House Rent.	Lights and Fuel.	Clothing.	Total	Family Provisions.	Food for Cattle.	Salt and Spices.	Total.	Implements, &c.	School Fund, &c.	Grand Total.
Prussia	7	6½	15½	29	50	10	4	64	3	2	98 Thalers.
Posen	7½	8	23½	39	41	9	4½	54½	5	2½	101 "
Pommerania	10	9½	22	41½	67	14	3	84	3	3½	132 "
Brandenburg	8	8	26	42	70	15	2	87	4½	4½	138 "
Silesia	5	8	17	30	54	8	3	65	3	3	101 "
Saxony	9	10	13	32	61	5	2	68	3	5	108 "
Westphalia	9	10	15½	34½	63	8½	3	74½	3½	3½	116 "
Rhenish Provinces	13	13	24	50	61½	9½	3	74	5	4	133 "
Average	8½	9	19½	37	58½	10	3	71½	4	3½	116 "

LABOR SYSTEM.

Whilst in Europe I furnished the Ohio State Journal a series of gossipping letters of travels and social life, more especially in Germany than elsewhere, in which I described the " guild system," a system which compels every mechanic to become a master workman, and never permits him to change his avocation; a system which completely destroys competition, and is rather a preventive than encourager of improvements, or inventions in mechanics. Some of my friends informed me, upon my return, that they believed that I had narrated in those letters the usages of the dark ages, the customs of feudel times, and *not* the condition of the enlightened and intelligent Germany of to-day. In re-reading my descriptions of the guild system I find the narrative a very faintly outlined picture, and therefore present in full an article of agreement, made between the proprietor of an estate in the province of Saxony, in Prussia, and which was published in the papers and eulogized as a very *liberal* arrangement with laborers, and the owners of estates were invited by the BITTERFELD DELITZCH ASSOCIATION to offer the same terms to their laborers, with the hope that the liberal terms and improved condition of the laborers would check emigration.

AGREEMENT WITH THE LABORERS.

Section I. The year of service or hire commences on the first of April and terminates on the 31st of March, without any regard as to whether the grain of the previous year has been threshed by the 31st of March or not. This contract may be discontinued at any time other than on the 31st of March, provided;

a. Both parties agree to it.

b. The conditions are not fulfilled. In both cases the emolument in land, forage, &c., granted to the laborers, will be computed in proportion to the time. If, however, neither party give notice of intention to discontinue during the first week of January, it is presumed that the agreement is to continue for another year.

Sec. II. Every laborer is required to keep the dwelling house assigned him in good order and repair, and especially to have the rooms properly ventilated. The repairs of the stones, glass and other parts of the windows are at the laborer's expense, as also is the white-washing of the rooms, also the setting of the posts and palings, and the repairs of the floors are at the laborer's expense, but the necessary materials of stone, wood, lime, brick and mortar, will be furnished by the proprietor. The laborer is not allowed to make alterations in the rooms, or additions to the walls of the house and stable. The place for storing straw for litter, wood and manure will be indicated by the proprietor, and must be accepted.

Sec. III. Strange persons, not belonging to the family of the laborer, shall not be received or harbored. The laborers are forbidden to allure the servants from the manor to their abodes, lest they may be incited to disobedience.

Sec. IV. No laborer is allowed to keep any poultry other than a few fowls, and he will be held responsible for any damage done by chickens to neighbors, whether his chickens did the damage or not.

Sec. V. The laborer is allowed to keep a cow. If he avails himself of this privilege, he must give notice to the proprietor before the first of April, annually. In consideration of 16 thalers ($12) per annum, as forage money, he receives

a. 145 square rods (16.8 square yards per square rod) of potato land, in such land as the proprietor raises potatoes.

b. Sixty square rods of turnip land, in rye stubble.

c. Forty-five square rods of carrot land, one third of the product to go to the proprietor, (root crops other than potatoes.)

d. Sixty square rods of meadow land.

e. Two thousand pounds of straw, from winter crops, during the winter season, in monthly rations, but he is not allowed to sell, exchange or give any away.

f. The necessary heath or forest litter, which the laborer must cut and gather at such places as are indicated to him. The manure is the property of the proprietor, but the laborer must load and spread it when and where directed. The laborer's cows are allowed to pasture in the ditches of the fields and road sides, but they must all be pastured in common, and at such period of the day when the laborers are not required at the manor. The search for field weeds permitted only when such request is granted, and must cease, without notice, as soon as the summer crops are heading, and the potatoes in bloom, but this also must be done by the laborers in common, during leisure hours only, and in one field at a time, under penalty of arrest and confinement. If any one is found carrying grass or weeds from the ditches or fields at any other time, or separate from the company, such person so offending will be fined *ten* silver groshen (25 cts.,) for each offense, and the fine to be doubled if he steal anything from the field.

Every laborer keeping a cow is further obliged to furnish, during the months of May to the middle of September, aside from the female laborer to be furnished every day, at least *three* days in every week, a second female laborer who is capable of performing the severer labor assigned to females, at the stipulated rate of wages, or he must submit to have a strange laborer employed, and the excess of wages deducted from his wages.

Sec. VI. Those laborers keeping no cow are furnished with a house free of charge, and receive

a. One hundred square rods of potato ground.

b. Thirty square rods turnip ground.

c. Thirty square rods of carrot ground, one-third of the product to go to the proprietor.

d. Three hundred pounds of straw for the winter season, litter and manure, under the same terms as those who keep a cow.

Sec. VII. The proprietor will furnish the laborers with the necessary corn (bread stuffs), at a rate proportioned to their daily wages; each laborer to receive so many bushels of rye at the rate of *four* men's daily wages [or 4 days' wages] for one bushel, as are lacking of 56 bushels of rye per year, in the quantities of grain earned by the laborer, reduced to rye value as follows:

One bushel of rye equal in value to ½ bushel of wheat.
" " " 1½ " barley.

One bushel of rye equal in value to 1¼ bushels of oats.
" " " 1 " peas.
" " " 1½ " mixed crops.

But as this reduction obviously cannot be made until after the threshing* is completed, the laborers are to receive *three* bushels of rye [or its equivalent as above indicated] every month, from April to September, at the rate of four days' labor per bushel in cash, and the amount is to be charged against the annual amount of wages of 56 bushels of rye. Thus every laborer receives, from the first of April to the 15th of June, 7½ bushels of rye, at 24 *silver groshen* [60 cents] per bushel, and from the 16th of June to the 1st of September, 10½ bushels at 32 silver groshen [80 cents] per bushel on account. In order to keep a plain and simple account, the entire sum of the laborer's wages is entered in a common account book, kept by the foreman (leading mower), and the grain bought by the laborers is entered on the opposite page. The grain to be bought is delivered to the foreman in such quantity as to give each laborer 1½ bushels at a time. The foreman must collect the money and deliver the entire sum [or a receipt for the given quantity of grain must be given by the laborer before the grain is delivered]. No grain will be delivered to an individual laborer at his own request. In years when the price of grain is low, if laborers decline to receive the monthly installments of grain, they cannot claim it at a later period.

Sec. VIII. In consideration of and for these products and privileges furnished and granted, and which must be taken into account, and considered as part payment of the cash wages, every *laborer* and his *wife* or *servant-girl*, must appear at the gate of the manor every morning ready for labor, and must perform any labor demanded of them, without claiming the privilege of doing it by turns, and they shall receive the following wages:

A. Daily wages from June 15, to October 15:
For men, 8 *silver groshen* [20 cents].
For women, 5 *silver groshen* [12½ cents].
For the remainder of the year:
For men, 6 silver groshen [15 cents].
For women, 4 silver groshen [10 cents].

Whenever a laborer or his wife is needed to fill the place of a domestic [servant] on the manor, he or she shall receive the same wages that was allowed to the one whose place they fill, and for the time employed in feeding or milking shall be allowed the warm meals of the manor domestics. For night watch 6 *pfennings* [1¼ cents] are paid per hour. Whenever the laborers or their wives are summoned to labor on Sundays or Feastdays or when the labor must be continued beyond the usual time for quitting, the man is to receive one *silver groshen* [2½ cents] per hour, and the women eight *pfennings* [1⅔ cents]; nothing will be allowed for half an hour's work beyond quitting time.

When labor is performed by contract, the day's wages form the basis for determining the rates of compensation.

B—LABOR BY CONTRACT.

a. During harvest time for mowing [in American values]:

One acre of meadow, 32 cents; one acre of clover, 20 cents; one acre of peas or lupines, 20 cents; one acre of barley or oats, 17½ cents; one acre of winter crops, 40 cents; one acre of rape seed, 52½ cents.

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* Grain crops are sold by weight,—the bushel is a standard *measure*, but is valued by the *weight* of the crop. Some years the bushel of wheat is 60 pounds, and others again as low as 56 pounds, and the grain is valued according to its weight; thus, a bushel of wheat weighing 56 pounds although sold by measure, does not bring as much as the bushel weighing 60 pounds. In short, the Prussian system in selling grain is our simple American system, with a good deal of machinery attached to it, viz: it is virtually 60 pounds to the bushel.—KLIPPART.

So far as crops of winter grain are concerned, the working and treatment of the crop until stored in the barn, viz: the cutting, binding, shocking re-shocking, the after raking or gleaning, of the rape seed crop, the cutting and binding are all included in the wages per acre. The raking must be done with rakes, the teeth of which are not more than three inches apart.

b. In the barn:

For threshing by hand, the laborer receives the 13th, and for threshing with the machine the 26th bushel, as wages for this service, and are required to deposit the grain, chaff and short straw, at the place designated; but the proprietor has the privilege to cause some work at harvest time and some threshing to be done by *day* laborers.

Sec. IX. As a rule, the working hours for men commence at 5 o'clock A. M., and terminate at 7 o'clock P. M., having an hour of rest at noon and a half an hour for forenoon lunch, and half an hour for afternoon lunch. During the short days, when work must begin later and cease earlier, the time for forenoon lunch will not be allowed from the 15th of December until the 15th of January. and the time for the afternoon lunch will not be allowed from the 15th of October until the 15th of February, and it is immaterial whether the laborers' work is by contract or otherwise; so also in threshing.

The working hours for females begins at 6 o'clock A. M., and terminates at 7 o'clock P. M., with the same allowances for dinner and for lunch. But the proprietor may order them to go to work at 5 o'clock A. M., and then they may have two hours at noon for rest or receive 6 pfennings [1½ cents] for the extra hour.

Every laborer must inquire before the hour for beginning what labor he is to perform, so that at 5 o'clock in summer and 6 o'clock in winter all the laborers may be at the gate at the precise hour provided with the proper implements of labor; otherwise they must expect to be "docked" an hour. The half hour allotted for lunch in the forenoon and afternoon must not be extended by going and coming. The time consumed in going home from the place of work, during the harvest, and in coming from home, will not be deducted from the working hours.

Sec. X. Every laborer must try to perform his work well and diligently, and whoever keeps a servant girl, must select a female capable of doing any work, otherwise she will not be accepted, and the laborer must pay the excess in the hire of a strange laborer. It is to be repeated that the emoluments of the laborers in the use of land, grain, &c., make up a considerable portion of their annual wages, and that an industrious and reliable laborer's family may always be engaged on these terms, and can live comfortably upon them; therefore, it is further stipulated that every laborer and his family must obey the orders and regulations of the proprietor, whether these orders be communicated to them by himself or his steward, shepherd, or other authorized person; but in order to fix the penalties for cases of disobedience and defective work, the following fines have been established, viz:

Sec. XI. *a.* When a laborer at work is found to be drunk, or cannot come to work because of drinking, he loses his wages for the time, and, for neglect of work or defective work, is fined two *silver groshen* in each case.

b. The laborers and their wives must avoid quarrels and brawls among themselves: if they quarrel while at work and do not cease at the command of the overseer, each of the quarreling parties will be fined one silver groshen.

c. Whoever disobeys the overseer or the foreman, or complies with the orders and directions given with grumbling or gainsaying, or uses vulgar and insulting language, and acts in accordance with such language, will be fined from one to five silver groshen.

d. When the laborers work by contract, they are each and every one responsible for the performance of the work. If a grass or grain crop be badly harvested, a fine of from one to 12 silver groshen will be imposed for a day's work, according to the extent of the bad work, and in this case it is to be determined by the laborers themselves, who did the bad work, and deduct the fine from his wages. The decision as to whether the harvesting is well or badly done is left to the proprietor or his steward, and if the defective work is detected as late as three days thereafter, the penalties will be imposed.

e. When a harvested field is badly raked, this defect must not only be made good, but the laborers must submit to a deduction from their wages of nine pfennings, [1 4-5th cents] per acre of the entire area of the field, even if some portions only of it are badly raked.

f. In threshing by hand, it is presumed that in 20 pounds of long straight straw or 15 pounds of short tangled straw, one gill of grains may remain; if more than this quantity be found upon a second threshing, the defective threshers will be fined 25 cents for the first time in the year, 37½ cents for the second time, and the third time they lose all they have earned up to that time.

g. When the threshers perform their labor lazily, whether they are laboring "by the *job*" or otherwise, the proprietor reserves the right to deduct for such negligence from their wages, an amount equivalent to the neglect.

h. As to the relation of the threshers or laborers among themselves and in regard to the foreman, there are special regulations appended to these conditions of the contract, and every laborer must submit to them. The fines arising from violations, like those imposed under *a b* and *c* of this section, are put into a common treasury box, and entered into the common account book of their wages. At the end of the year the proprietor determines how this money is to be appropriated for the benefit of the laborers.

REGULATIONS.

1. In mowing, every one must be at his post at the appointed time; if any one comes too late, or when the leader (foreman) has already cut a swath through, the man laborer is fined one silver groshen, and the woman or female laborer six pfennings [½ silver groshen.]

2. The same penalty is fixed in re-shocking the grain crops.

3. He who does not mow his swath well and properly through, pays also one silver groshen.

4. In mowing, every one must take two short steps to the swath.

5. Whoever does not rake well the piece assigned him, will be fined three silver groshens.

6. Whoever comes too late in threshing, or when one round has been threshed, loses one peck of the kind of grain being threshed, which is deducted from his wages.

7. Whoever is unclean, or uses vulgar language at the table, will be fined three silver groshens.

8. Whoever causes any disturbance, and is not quiet when ordered to be so, will be fined six silver groshens.

9. Whoever takes the property of another, or commits a theft, will be fined six silver groshens, and shall be reported to the court.

10. Whoever is drunk while at work will be fined seven and a half silver groshens.

These regulations read and approved by me.

OBERAMTMAN HAYNER, of Strohwalde.

[In the translation of the contract I have translated the term "*drescher*" as being a "*laborer*," whereas it really means "*thresher;*" but its accepted significance in Germany is that of an ordinary resident farm laborer. Special arrangements are made with the shepherd, cowherd, plowman, &c. The American laborer will fail to see wherein the boasted liberality consists, or where there is any special inducement to stimulate to industry; surely not in the clause compelling the wife and servant girl to go out on the fields to labor, nor yet in the clause authorizing the proprietor to take the laborer's wife and put her to service in the manor. In speaking with German proprietors on this point, they replied that it was of rare occurrence and very seldom practised, just as our slaveholders formerly said of selling the slave husband away from the slave wife.

In the Province of Prussia, the landed proprietors are of opinion that the laborers have under the system of furnished abodes and share of the crops, too many advantages and have no stimulus to labor and economy, and have therefore submitted the following statement to the Provincial Board of Agriculture asking the introduction of the "*Cash*" system.—KLIPPART.]

"It is an established fact that the only just and correct system of remuneration for services, is to pay in cash, by the piece or "job," wherever it is practicable. It is not the time spent at work but the quantity or quality of the labor actually performed, should form the basis of the calculation;—then the employer pays for the *real* value *only* obtained by the labor, and the laborer himself gains the opportunity of earning more by laboring more assiduously, besides it produces this moral benefit, that the industry of the laborer is liberated from the supervision of the employer, and the laborer is actuated by a more powerful motive to improve and perfect himself as a workman. The correctness and feasibility of piece work has long since been acknowledged in Agriculture, as well as in other industrial pursuits, and practically confirmed in many instances. But in this Province it has been adopted in threshing only, and here and there when and where strange laborers have been employed.

"So far as regards the wages of the resident laborers, a custom yet prevails among us worse than paying by the day; for we pay them not only according to the time they actually labor, but we furnish them with provisions, fuel, tenement, &c., during the entire year; we pay them also for the time they live on the manor or farm, whether they labor or not. As a rule, these supplies are so calculated that they meet the necessary requirements of the family, aside from the wages. In consequence of this arrangement, the rates of wages for piece work as well as time wages, must necessarily be low; otherwise the labor would be entirely too expensive, on account of the supplies furnished. It is well known that the common laborer works without any higher moral motive than his bare existence or to earn a few groshen. [What other motive could he possibly have? In an oppressive government, where there are legal and regal castes and classes of society, to what can the common laborer ever attain?—KLIPPART.] If their sustenance and the maintenance of their families are fully assured, and their own rates of wages low, as now really is the case with our resident laborers, the stimulating impulse to labor is removed, and in its stead supervenes a lack of interest in the prosperity of the farm, negligence, propensity to idleness, and bodily and mental languor are produced. This state of things explains of itself for the greater part the complaints of the incapacity of the laborers. It is certainly within the power of the proprietors to remedy this evil, by simply abolishing the custom of furnishing supplies and adopting the system of paying them in *cash*; first commencing with the hire by the day, and gradually advancing to paying by the piece, to which the resident laborer is at present opposed, because *now* he has no care or responsibility in providing for the sustenance of his family, and the rates of wages for piece work being, under existing circumstances, of course less than that paid to free laborers, forms no inducement for him to work with more energy and industry, like the free man.

How this change may be effected we will endeavor to show by citing an instance of a manor near Danzig, from which we gratefully acknowledge the receipt of accurate statements in regard to the condition and employment of its laborers. The manor contains 2,200 morgen [1,375 acres] of arable and meadow land, and there are eighteen resident families of laborers on it. The husband and shareworker of every family must appear in the court-yard every day in the year, ready for labor ; the wife of the former is required to appear but *four* afternoons every week from St. John's day (June 24th) to the first of October; from 100 to 120, say an average of 110 winter days are employed in threshing on shares. Every resident laborer's family receives—

a. Supplies and compensation.

Free dwelling, worth $9.75.
Five-eighth acre garden ground, $7.50.
Forage for one cow, $18.75.
Feed for two hogs, $4.50.
One-half acre of arable land, $4 35.
Four and one-half bushels rye, $3.75.
Pay for raker, $0.50.
Total, $49.10.
From this deduct—
Rent for dwelling house and garden, $3.75.
Fuel, $0.75.*
Balance, $44.60.

In days' wages, the year containing 300 working days—

The man for 150 summer days, from April 1 to Oct 1, at 10c. per day	$15.00
" winter " Oct. 2 to March 31, at 7½c. "	3.00
The shareworker for 150 summer days, at 6¼c. per day..................	9.37½
" 150 winter days, at 5c. "	7.50
The wife for 28 days, at 7½c. per day	2.10
	36.97½.

c. Shares in threshing:

4½	bushels	wheat..	$5 25
21	"	rye..	17 50
9	"	peas..	7 50
6	"	oats..	1 70
4½	"	barley..	2 25
			$34 20

Now, if we leave the threshing on shares out of the account, and for which free laborers might be hired at 30 cents per day at any time in winter, and apportion the supplies and the days' wages to the remainder of the working days, we obtain (if we estimate the proportion of the rate of a man's wages to that of a woman's at 5 to 3) an average of

190 days for the man, at 21¼ cents per day.
328 " " woman at 12¾ cents per day.

Furthermore, if we estimate the proportion of summer wages to those of winter as 4 to 3, then

A man's per diem in summer is 22 cents—in winter 16½ cents.
A woman's " " 15 " " 18¾ "

These would be the rates of wages, if the wages now so promiscuously paid during the year for hire and supplies furnished, should each be paid in cash, which, it is very apparent, would be more than double the cash wages heretofore paid.

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* The manor has the *right* to gather wood in the neighboring forest, hence the fuel is not taken into the account.

It is very evident that if the laborer was obliged to depend solely upon the money he actually earns by his labor for the supply of his wants, he would endeavor to earn as much as possible, not only by *his own* industry, but by employing all the members of his family able to work, especially his wife—for the more labor they performed the more money would be earned; and in this way the employer would gain more laborers. Now, if the days' wages were changed into pay by the piece, the employer would not only gain more laborers, but the laborers would endeavor to become more skillful. On the other hand, the laborer would by this system be enabled, if working by the day, to earn more money by doing more labor in a given time, if working by the piece, by performing his labor more skilfully and rationally. And when he is not paid in certain supplies actually delivered to him, or to be raised in the field and garden, destined for family consumption, *but in cash*, he will then begin to consider how to appropriate it in the best manner—in a word, he will try to *save something*. Aside from the eighteen resident families of laborers, there are twelve families of deputants kept on the manor on the same terms. The Steward insists that if these thirty families would do more work, and especially the women, they might easily perform all the labor required on the manor, whilst at present at least $300 are paid per annum to strange laborers.

Individual effort cannot succeed in introducing innovations of this kind, and we therefore respectfully ask the Agricultural Society to endeavor to make the demanded change."

[In the entire course of my travels on the continent I saw no drunkenness, idleness or tendency to *loaferism* among the laboring classes. They were industriously at work wherever I saw them, and it appeared to me that the women had the hardest part of the labor to perform. It was seldom that I saw a team in the meadow to haul in the hay, but the women tied the new made hay in large linen sheets and carried it to the barn on their heads. This I saw in Prussia, Saxony, Bavaria and Wurtemburg. In Prussia I saw girls of 18, 20 and 21 years of age, with hands quite horny, and fingers knotted; the back stiff and bent with labor; the step that of a Sexegenarian; and faces no fairer than that of full-blooded Pottawattomies, and blank and vacant of expression as the stare of an idiot. The dress was simply a cotton or linen slip reaching a few inches below the knees; bare-armed, bare-headed, bare-legged and bare-footed; and thus attired, they were toiling in the open field under a broiling sun (80° to 94° F.) from 5 o'clock A. M. to 7 o'clock P. M., for 8 to 12 cents a day! Such sights met me everywhere on the continent. Then, too, I saw a woman aiding a cow or heifer to draw a load of manure or rubbish in a cart—a woman and a dog or two hitched to a cart, taking vegetables to market.

I was interested in the appearance of these farm laboring men and women, for I knew that less than a hundred years ago their ancestors were *slaves;* not enslaved as the Africans were in our Southern States, where members of the same family were separated and sold away; not yet under the Peon system of slavery so long tolerated in Mexico; but a species of slavery which gave the proprietor complete control over, and invested him with the ownership in or of the persons or bodies of his slaves—LEIBEIGNER, or "body owner," as he was called. The owner had the right to do what he chose with his slaves, except to sell them off of his estate. They belonged to the estate, and could no more be sold away than the soil could. Of course they were uneducated and brutalized, and their descendants to this day exhibit brutalized features and an expression of countenance indicative of vacuity of mind. The women and girls exhibited none of the graceful, supple and agile movements of the wives and daughters of American laborers; and so far as personal beauty is concerned, they are many removes in the rear of ours.

In going to and from the fields they always marched "single file," carrying a hoe rake, sickle, or other hand implement, and as quietly as soldiers on parade. I frequently accosted them and endeavored to draw them into conversation, but they only gazed at me with a vacant stare, and all their conversation consisted of monosyllabic answers to my inquiries. There was no "chatting" or merriment among themselves, and I often wondered whether they ever smiled or laughed. Among the thousands I saw I am sure I never saw a smile or heard a laugh. Their faces uniformly wore the expression of the quintessence of earnestness, or else absolute vacuity of thought.

Both the women and men were much smaller than I had expected to find them. The Prussian statisticians state that Quetelet's measurements and weights of the sexes at different periods of life of the Belgians, correspond with those of the Prussians, and they therefore have adopted the averages as applicable to themselves. According to these statistics, a Prussian man at 40 years of age is 1684 millimetres (5 feet 6¼ inches) high, and weighs 127½ pounds; and a Prussian woman at 30 years of age is 1579 millimetres (5 feet 2 1-5 inches) high, and weighs 108¾ pounds. The average weight of a child when born is 6½ pounds, and the dried skeleton of an adult weighs from 9 to 12 pounds.

There is no doubt, in fact it is almost demonstrable, that the thirty years' war, followed by the seven years' war, the wars of Frederick the Great, and, later, those of Napoleon the Great, have reduced the stature of the German nation. During these long continued and bloody wars, men of a certain stature were liable to conscription; these were taken and placed upon the battle field. Those of a less stature were not liable, and remained at home. This conscription was chiefly among the laboring classes; hence we find to-day that, as a class, the laborers are shorter in stature than the nobility. This latter class, the nobility, are, as a rule, much taller than the laborers. And the military minimum of stature has been reduced two inches within the past hundred years.

We need no better evidence of the condition of the morals of these lower classes than the statistics of illegitimate births. In *Schneider's Handbuch der Erd-Kunde,* he states the illegitimate births in

Berlin, at	19	per cent.	of the	entire number	of births.
Stralsund	12	"	"	"	"
Liegnitz	11	"	"	"	"
Danzig	10	"	"	"	"
Konigsberg	31	"	"	"	"
Breslau	25	"	"	"	"
Elling	24	"	"	"	"
Madgeburg	22	"	"	"	"

But gives the whole of Prussia at 10 per cent.

Dr. Geo. Viebahn, in his *Statistic des Zollvereinten und Nördlichen Deutschland,* Berlin, 1862, an official publication by the Prussian Government, gives the per cent. of illegitimate births in the German States as follows: For every illegitimate birth there are in

1.	Prussia	10.85	legitimate.
2.	Oldenburg	9.89	"
3.	Hannover	9.51	"
4.	Grand Duchy of Hesse	7.32	"
5.	Kur Hesse	7.02	"
6.	Hamburg	6.75	"
7.	Wurtemburg	6.70	"
8.	Baden	5.59	"
9.	Saxony	5.52	"
10.	Frankfort-on-Main	5.08	"

11.	Mecklenberg Strelitz	4.67	legitimate.
12.	Saxe Meinigen	4.50	"
13.	Mecklenberg Schwerin	4.28	"
14.	Bavaria	3.65	"

This shows that over 25 per cent. of the births in Bavaria are illegitimate. I have somewhere seen a statement that in the city of Munich 60 per cent. of the births were illegitimate.

No where on the continent, nor even in England, does woman enjoy the same elevated social and moral position that she does in the United States. No man, whether gentle or otherwise, thinks of yielding his seat in the cars, at the theatre, opera, or church, to a female of his own, or inferior rank. Ladies traveling without a male companion have not the attentions paid them at depots or hotels which they have when accompanied by gentlemen. At one custom house in the interior of Germany I saw a lady, who was the first person of a railway train load of passengers, enter the "Zollamt," or custom house, to have her baggage inspected, but was roughly pushed aside and told to wait. She made repeated efforts to have her baggage examined, but every time was pushed aside by the officer, and her's was the very last baggage examined.

What position can woman expect to occupy—what respect or esteem can she expect to command in Bavaria, where every fourth birth is an illegitimate one.

Every laborer or mechanic's wife is engaged, in her hours not devoted to household duties, to spinning, weaving, knitting, crocheting, lace making, or some such pursuit, manufacturing or making something to sell; and I was assured that the wife of a laborer or mechanic would consider herself very much disgraced if she did not earn her own bread and part of her clothing by the manufacture of some merchantable articles. But the wives of the wealthy and the nobility perform less household duties than the wives of the wealthy in the United States.

CHAPTER IV.

PRUSSIA.

Before attempting to describe the agriculture of Prussia, it may be well to give an outline, at least, of the kind of soil on which agriculture is conducted. From the mouth of the Rhine to the Russian frontier, the northern part of Germany is of the quartenary geological formation; and throughout Prussia, with the exception of the Rhenish provinces, this formation consists of recent deposits of sand. In fact, Prussia is a vast sandy plain, with here and there a small region or district of clay. From Mayence to Bonn, the Rhine has cut its channel through the Devonian formation. From Basel to Mayence, the Rhine flows through a quartenary or modern dilivial valley, some twenty miles wide; a few miles north of Worms it cuts through the Eocene formation, which really continues to Bingen and at this latter place the Devonian commences; hence from Bringen to Drachenfels the scenery is very romantic, and enchants almost all the travelers who pass up or down the Rhine between these points, whilst below Bonn and above Mayence, the stream flows through a level plain, and the scenery, consequently, is dull and monotonous. A few miles northwest of Dresden, in Saxony, the Elbe has cut its way through a granitic formation, but before it reaches the Prussian borders its channel has entered the vast sandy plain, through which it continues until it reaches the North or German Sea. The Oder and its tributaries rise in the mountainous regions of Silesia and Austria, but as soon as they reach the mountain's foot they enter upon the vast plain above referred to. The drift or clay formation which we have in Ohio is rarely found in Prussia, whilst that class of soil known as "loam" here in Ohio, is to be found predominating in the province of Saxony, especially in the vicinity of Magdeburg, where there is a new red sandstone formation. A good sandy loam prevails in the "Oderbruch," a region extending from Frankfort on the Oder for several (German) miles northward, on both sides of the river.

Before I visited Prussia I often was astonished to find in the agricultural statistics of the country such small returns of crops, but after visiting and traveling the country, I was equally astonished at the *great* results obtained. I saw many fields, embracing large tracts of almost pure sand—so pure that strong sweeping winds drifted it, and it lay in dunes, resembling waves which had been suddenly stopped. One large field near Temple Hof, in the vicinity of Berlin, on which a good crop of Lupines had been grown, was a field of sand sixteen feet thick. In other portions northward, eastward and westward from Berlin, I found peat or humus formations. The native forests have disappeared hundreds of years ago, and a very great majority of the forests are of the pine family. I am assured that it is exceedingly difficult to grow a deciduous forest, on account of the great preponderance of sand, and the small proportion of clay. I had been assured that our "hickories" *(carya)* would not grow there, but I found almost all of our native forest trees flourishing in the botanical gardens at Berlin and Potsdam, although they require much more care and study than the European trees.

That which very agreeably disappoints every American traveler there is the entire absence of fences or hedges—in many districts neither hedge, fence nor other kind of *barriere* is to be seen. Whilst in Europe, the thought often occurred to me "could not the $100,000,000 which we have spent in Ohio for fences have been applied to some better purpose? Germany must raise bread and meat for her population as well as we do, she is many times more densely populated than we are, and yet she gets along without hedge or fence much better than we do with them. But on the other hand, here in Ohio every landholder has absolute rights to his estate, and *everybody* is bound to respect those rights—but in Europe, especially in fox hunting England, these rights are not so *extensive* as they are here. Still these fences are physical manifestations of independence and—unsocial dispositions.

Prussian Crops.—There is no reliable system of agricultural statistics in all Europe. Prussia is famous for her very precise statistics; but this fame or notoriety must rest more on the nicety of decimal calculations as exhibited in the statistical tables and reports than the positive data upon which the absolute knowledge rests. The Prussian statisticians *assume* that a *morgen* (five-eighths of an acre) will produce an average crop of *so many* schefiels of wheat, rye, barley, oats, &c., and then persons are appointed in the several provinces to ascertain whether the crops of the current year are above or below the average in *tenths*. This may be well enough if a person knew precisely what the average crop or unit of calculation was taken to be; but as no definite or positive statistics have ever been collected, the whole system is nothing more than mere *guess work*. Not satisfied with this system of assumption, Baron von Vincke adopted another system. He ascertained the amount of cereals exported from and imported into the kingdom, ascertained the amount ground in the several mills, and the amount consumed in distilleries. From these data he assumes that Prussia produces annually—

Wheat	45,563,146	bushels
Rye	97,336,671	"
Barley	17,254,438	"
Oats	51,905,248	"

Or in detail, so far as wheat is concerned, thus :—

Consumption	22,542,576	scheffels*
Excess of exports over imports	2,371,047	"
Distilled	199,236	"
Brewed	200,000	"
Seed, 1-5	5,062,572	"
Total 45,563,146 bushels, or	30,375,431	"

From these statistics of von Vincke (although unsatisfactory) we can obtain some insight as to the amount of cereal food consumed by each individual. From his tables it appears that the average consumption in 1858–59–60 was as follows *per capita* of the entire population :—

	Wheat.		Rye.		Q'ts of Beer.
	Pounds.	Ozs.	Pounds.	Ozs.	
Silesia	116	7	262	11	9.09
Pommerania	90	11	276	4	5.28
Saxony	80	5	272	25	19.21
East Prussia	94	2	255	10	15.83
Brandenburg	87	11	260	3	16.48
West Prussia	90	1	251	5	10.45
Posen	76	4	256	11	4·20
Rhenish provinces	107	11	179	3	12.09

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* The scheffel is about one and a half bushels in Prussia, but differs in every province—in Wurtemburg it is nearly *four* bushels.

This gives an average of 5¾ bushels of wheat and rye—the staple cereals for human food—to each inhabitant. The consumption of cereal food in the United States is estimated by our statisticians at six bushels. But if we estimate wheat at sixty pounds per bushel, and rye at fifty-six, then the Germans consume nearly one bushel and thirty-three pounds of wheat and four and a half bushels of rye, or a little more than six bushels of cereals *per capita.*

The crops of Prussia from many years' returns and several systems of statistics, give as the average product of the ten years ending in 1863, the following:—

	Average.	Maximum product.
Washed sugar beets	192 cwts. per acre.	288 cwts. per acre.
Potatoes	116 "	153 "
Clover hay	40 "	64 "
Wheat	29 bush. per acre.	41 "
Rye	29 "	43 "
Oats	41 "	63 "
Barley	33 "	50 "
Rape	25 "	40 "

When it is remembered that the greater portion of Prussia is a vast sandy plain, very illy-adapted to agricultural purposes, the average crops can not fail to appear extraordinary. But there is a care and an unremitted persevering labor and attention bestowed on the crops, as if it were determined to *compel* the crops, by force of applied labor and attention, to grow.

A classification of soils has been made in Prussia, and this classification is taught in the agricultural schools. The experience of many years has determined the qualities of the several kinds of soils so accurately, and so much in accordance with science, that comparatively very little is yet to be ascertained in this respect. The soils are classed as follows:

CLASS I.—HUMUS CLAY. *(Humus Reicher Thonboden.)*

Excellent Wheat Land.

It is well known that alumina, combined with oxygen, produced a clay or alum earth; that this earth or clay has the property of absorbing and retaining a very large proportion of moisture, and that it always is accompanied by lime and talc, and has a fair proportion of alkalies. In the class of soils under consideration this species of clay predominates.

a. The soil consists of—

60 to 85 per cent. of clay, lime and alkalies.
3 to 20 per cent. of sand, usually very fine.
7 to 15 per cent. of non-acid humus.
3 to 9 per cent. of lime earth.

b. The arable soil in this class is, at least, one foot deep; the subsoil porous slightly ferruginous (or containing iron ore;) the *lay* of the land is generally level.

c. The cultivation of this soil, in fair weather, is not heavy, but in severe droughts, or long continued moist weather, it often is impracticable to do anything with it.

d. The crops which succeed the best on this soil are, rape, flax, wheat, barley, oats, clover and beans. The class of soils is generally found in low places—seldom on any considerable elevations.

CLASS II.—CLAY SOIL. *(Thonboden.)*

First Class Wheat Soil.

This class is distinguished from the preceding in containing a larger proportion of sand and less humus; the depth of arable soil not so great, and the subsoil somewhat impervious. The crops same as Class I.

CLASS III.—CLAYEY SOIL. *(Thonigerboden)*

Second Class Wheat Soil.

This class differs from the two preceding by having less humus and lime.

a. It consists of—

65 to 68 per cent. of clay, and a trace of talc and alkalies.
12 to 30 per cent. of sand.
3 to 6 per cent. of humus.
2 to 6 per cent. of lime.

b. The depth of the soil is less than a foot, the subsoil is impervious and ferruginous.

c. The culture of it is heavy.

d. The crops are wheat, beans, barley, vetches and oats.

CLASS IV.—LOAMY SOIL. *(Milder Lehmboden.)*

First Class Barley Soil.

a. Component parts—

30 to 50 per cent. clay.
40 to 60 per cent. fine sand.
6 to 16 per cent. non-acid humus.
3 to 10 per cent. lime earth.

b. The depth of this soil is from six to eighteen inches—in low places deeper, yet the subsoil is porous, somewhat ferruginous—when the soil has a large proportion of sand the subsoil is more compact. This class of soils is generally level, although free from water.

c. The culture of this soil is easy, and is seldom interrupted by the condition of the weather, except in cases where the large per centage of clay prevails.

d. The crops adapted to this soil are wheat, where clay prevails, where it does not, then rye, barley, oats, vetches, peas, clover and lucerne.

CLASS V.—SANDY LOAM SOIL. *(Sandiger Lehemboden.)*

Second Class Barley Soil.

a. Composition—

25 to 50 per cent. clay.
20 to 70 per cent. sand.
1½ to 3 per cent. humus.
2 to 25 per cent. lime earth.

b. The depth of the soil is generally less than a foot, with very different subsoil, it is seldom, nevertheless, very ferruginous.

c. Cultivation light or easy.

d. The crops are rye, barley, oats, potatoes, red clover, peas, vetches, millet, flax and tobacco.

CLASS VI.—LOAMY SAND SOIL. *(Lehmiger Sandboden.)*

First Class Oat Land.

There are several classes of soil which, so far as crops are concerned, may, with propriety, be classed under this head, viz:

1st. Loamy sand, with a small proportion of humus.

2d. Black, mucky soil with peaty or turfy ingredients.

3d. Marly soil.

4th. Clay soil, with little humus, having oxyde of iron, coarse, sandy loam, with ferruginous hard clay subsoil in moist places—the so-called third class wheat soil.

a. Composition—

(1.) 20 to 30 per cent. clay.
68 to 80 per cent. sand.
1 to 1½ per cent. humus.
1 to — per cent. lime.

(2.) 5 to 45 per cent. clay.
30 to 80 per cent. sand.
15 to 30 per cent. acid coal, like humus.

(3.) 10 to 50 per cent. clay.
40 to 80 per cent. sand.
5 to 20 per cent. lime.
½ to 2 per cent. humus.

(4.) 70 to 90 per cent. clay.
7 to 25 per cent. sand.
1 to 2 per cent. humus.
1 to — per cent. Lime.

b. Cultivation on 1, 2 and 3 is very light or easy, but heavy or difficult on No. 4.

c. The soil is thin, or at most not deep; the subsoil in 1 and 2 generally sandy; in 3 more or less impervious, sometimes sandy; in No. 4 it is always impervious.

d. The crops on 1 and 3, rye, oats, buckwheat, potatoes, lupines, esparsette; on No. 3, red clover; on No. 2, chiefly oats; and No. 4 best adapted to grasses. With proper manuring and tillage wheat does better than rye, oats, peas or beans.

Class VII.—Loamy Sand. *(Lehmiger Sand.)*

Second Class Oat Land.

a. Composition—

15 to 20 per cent. clay.
75 to 85 per cent. sand.
½ to 1½ per cent. humus.

b. Tillage easy.

c. The soil generally level, the subsoil sandy.

d. The crops are rye, oats, spergula, lupines, potatoes, buckwheat, white peas, white clover, sheep's fescue, and in good seasons red clover.

Class VIII.

Third Class Oat Land. First Class Rye Land.

This class contains more sand than the preceding class, less clay, but more humus. The soil is generally very flat or level, the subsoil sandy, the tillage easy, and the crops same as Class VII., except the red clover.

Class IX.—Good Sandy Soil. *(Guter Sandboden.)*

Second Class Rye Land.

a. Component parts—

5 to 8 per cent. clay.
90 to — per cent. sand.
3 to 6 per cent. humus.

b. Tillage easy.

c. The soil is generally five to six inches deep; the subsoil sandy.

d. The crops same as VIII.

Class X.—Sand Soil. *(Sandboden.)*

Three Year Rye Land.

a. Component parts—

4 to 8 per cent. clay.
90 to 95 per cent. sand.
½ to 1½ per cent. humus.

b. Tillage easy.

c. Soil seldom more than four inches deep, subsoil sandy.

d. Crops are rye, buckwheat, lupines, sheeps' fescue (grass). There are three classes more of sandy soil, known as the *six*, *nine* and *twelve* years rye land, or lands in which a good crop of rye can be obtained but once in the respective number of years.

The soils have been thus classed in accordance with a Government order, a geological survey, as chemical analysis, and the crops were ascertained by years of experience Annexed are the rotations for the several years on the various classes.

CLASS I.

6 years course.

1. Tobacco, (manured).
2. Barley with clover.
3. Clover.
4. Wheat.
5. Rye.
6. Oats.

7 years rotation.

1. Rape.
2. Barley.
3. Wheat.
4. Rye.
5. Oats.
6. Clover.
7. Clover, the fallow well manured for rape.

8 years rotation.

1. Well manured fallow.
2. Rape.
3. Barley.
4. Wheat.
5. Oats.
6 Clover.
7. Clover.
8. Wheat.

9 years rotation.

1. Tobacco, (manured.)
2. Barley.
3. Wheat.
4. Barley.
5. Clover.
6. Clover (manured).
7. Rape.
8. Oats and barley.
9. Wheat.

10 years rotation.

1. Manur'd fallow.
2. Rape.
3. Barley.
4. Wheat.
5. Oats or beans manured.
6. Wheat.
7. Oats or beans.
8. Clover or beans
9. Clover or wheat.
10. Wheat, or oats, in many places pasture.

CLASS II.—FIRST CLASS WHEAT LAND.

Eight years rotation.

1. Manured fallow.
2. Wheat.
3. Clover.
4. Clover.
5. Wheat.
6. Hoed crops.
7. Barley.

. Oats.

Nine years rotation.

1. Hoed crops manured.
2. Barley.
3. Clover.
4. Clover.
5. Wheat.
6. Oats.
7. Beans manured.
8. Wheat.
9. Oats and peas.

Ten years rotation.

1. manured fallow.
2. Rape.
3. Wheat.
4. Clover.
5. Clover.
6. Wheat.
7. Manured hoed crops.
8. Barley.
9. Beans.
10. Oats.

CLASS III.—SECOND CLASS WHEAT LAND.

Seven years rotation.

1. Manured fallow.
2. Wheat.
3. Clover.
4. Clover.
5. Rye.
6. Hoed crops.
7. Oats.

Nine years rotation.

1. Fallow manured.
2. Wheat.
3. Clover.
4. Clover.
5. Rye.
6. Hoed crops manured.
7. Oats and barley.
8. Peas.
9. Rye.

Twelve years rotation.

1. Manured hoed crops.
2. Barley.
3. Clover.
4. Clover.
5. Clover fallow manured.
6. Rape.
7. Wheat.
8. Peas.
9. Rye.
10. Beans manured.
11. Wheat.
12. Oats.

Class IV.—First Class Barley Soil.

Five years rotation.	Seven years rotation.	Nine years rotation.	Ten years rotation.
1. Manured fallow and potatoes.	1. Beans manured.	1. Fallow manur'd.	1. Potatoes manur'd
2. Barley.	2. Wheat.	2. Rape.	2. Barley.
3. Clover.	3. Clover.	3. Wheat.	3. Clover.
4. Clover.	4. Barley.	4. Clover.	4. Clover.
5. Wheat and rye.	5. Potatoes manur'd.	5. Clover.	5. Rye.
	6. Barley.	6. Rye.	6. Peas manured.
	7. Rye.	7. Hoed crops manured.	7. Barley.
		8. Barley.	8. Fallow and green forage.
		9. Oats.	9. Rye.
			10. Oats.

Class V.—Second Class Barley Soil.

Eight years rotation.	Nine years rotation.	Ten years rotation.
1. Fallow manured and green forage.	1. Fallow manured.	1. Fallowed, manured and green forage.
2. Rye.	2. Rye.	2. Rye.
3. Clover.	3. Peas.	3. Clover.
4. Clover.	4. Oats.	4. Clover.
5. Rye.	5. Potatoes manured.	5. Rye.
6. Potatoes manured.	6. Barley.	6 Hoed crops manured.
7. Barley.	7. Clover.	7. Barley.
8. Oats.	8. Clover.	8. Peas.
	9. Rye.	9. Rye.
		10. Oats.

Class VI.—Loamy Sand.

First Class Oat Land.

Seven years rotation.	Eight years rotation.	Ten years rotation.
1. Fallow manured.	1. Potatoes manured.	1. Fallow manured.
2. Rye.	2. Oats.	2. Rye.
3. Red and white clover.	3. Red and white clover.	3. Clover and timothy.
4. Clover.	4. Clover.	4. Clover.
5. Rye.	5. Rye.	5. Clover.
6. Potatoes.	6. Potatoes.	6. Rye.
7. Oats.	7. Rye.	7. Potatoes manured.
	8. Oats.	8. Oats.
		9. Peas.
		10. Rye.

Black mucky soil.	*Marly soil.*	*Clay with little humus.*
Nine years rotation.	Fourteen years rotation.	Nine years rotation.
1. Tobacco manured.	1. Fallow manured.	1. Fallow manured and green forage.
2. Oats.	2. Rye.	2. Wheat.
3. Clover and Grasses.	3. Clover.	3. Clover.
4.	4. Clover.	4. Clover.
5.	5. Rye.	5. Rye.
6.	6. Potatoes.	6. Beans manured.
7. Oats.	7. Oats.	7. Rye and barley.
8. Oats.	8. Peas manured.	8. Potatoes.
9. Potatoes and buckwh't.	9. Rye.	9. Oats.
	10. White clover.	
	11. Pasture.	
	12. Pasture.	
	13. Rye.	
	14. Oats.	

I have thought proper to omit the intervening classes VII., VIII., and IX., and will conclude this narrative of rotation on classified soils by giving that of

CLASS X.—*Three Year Rye Land.*

1. Spergula manured.
2. Rye.
3. White clover and fescue.
4. Pasture.
5. Pasture.
6. Pasture.
7. Rye.
8. Potatoes manured.
9. Rye.
10. Sheeps' fescue.
11. Pasture.
12. Pasture.
13. Lupines plowed down.
14. Rye.
15. Lupines plowed down.
16. Rye.

An estate which I visited, and which embraced I., and II., classes of wheat lands, I. and II. barley land, and I. class of oat lands, the following rotation has been found the most successful :

	Condition in 1860.	1861.	1862.	1863.	1864.	1865.	1866.	1867.	1868.
Field No. 1.	Clover II.	½ clover and ½ potatoes.	Manured barley.	Rye.	Oats.	Manured fallow.	Rape.	Wheat and Clover.	Clover I.
Field No. 2.	Manured peas, barley, potatoes and clover.	Rye.	Oats.	Manured fallow.	Rape.	Wheat and clover.	Clover I.	½ clover II., ½ potatoes.	Manured barley.
Field No. 3.	Peas, barley, potatoes, clover I., and oats.	Barley and clover.	After clover, rye and green fodder.	Oats.	Manured fallow.	Rape.	Wheat and clover.	Clover I.	½ clover and ½ potatoes.
Field No. 4.	Clover I., potatoes, oats and wheat.	Manured fallow.	Rape.	Wheat and clover.	Clover I.	½ clover II., ½ potatoes.	Manured barley.	Rye.	Oats.
Field No. 5.	Rye, wheat, rape and clover.	Clover I.	½ clover II., ½ potatoes.	Manured barley.	Rye.	Oats.	Manured fallow.	Rape.	Wheat and clover.
Field No. 6.	Manured rape and barley, manured fallow.	Wheat and clover.	Clover I.	½ clover, ½ potatoes.	Manured barley.	Rye.	Oats.	Manured fallow.	Rape.
Field No. 7.	Manured fallow.	Rape.	Wheat and clover.	Clover I.	½ clover, ½ potatoes.	Manured barley.	Rye.	Oats.	Manured fallow.
Field No. 8.	Clover and rape.	Oats.	Manured fallow.	Rape.	Wheat and clover.	Clover I.	½ clover II., ½ potatoes.	Manured barley.	Rye.

The perpendicular columns show the crops grown each year on the estate, whilst the horizontal columns show the rotation in each field. But as this estate was considerably above the average in quality of soil—in fact I was told it was one of the best in Prussia—it may not be improper to present the rotation on an estate of inferior soil. *(See next page.)*

ROTATION OF CROPS ON INFERIOR SOIL.

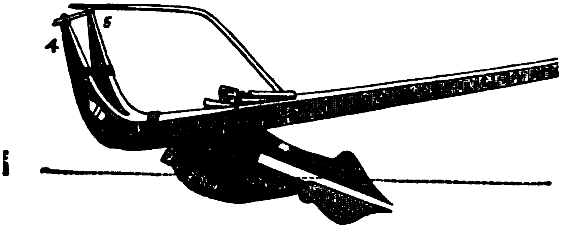
Condition in 1860.	1861.	1862.	1863.	1864.	1865.	1866.	1867.	1868.	1869.	1870.
1. Manured potatoes.	Rye I. and clover.	Clover I.	Clover II.	Clover III.	Rye II.	Potatoes manured.	Oats, spring rye & peas.	Lupines & spergula.	Rye III.	Manured fallow.
2. Fallow, part in rye.	Rye III. then fallow.	Manured fallow.	Rye I., with clover.	Clover I.	Clover II.	Clover III.	Rye II.	Potatoes manured.	Oats, spring rye & peas for green soiling	Lupines & spergula.
3. Rye and fallow.	Oats, spring rye & peas for green soiling.	Lupines and spergula.	Rye III.	Manured fallow.	Rye I., with clover.	Clover I.	Clover II.	Clover III.	Rye II.	Potatoes manured
4. Peas manured and rye.	After peas, rye II.; after rye, fallow.	Potatoes manured.	Oats, spring rye & peas for green soiling.	Lupines & spergula.	Rye III.	Manured fallow.	Rye I., with clover.	Clover I.	Clover II.	Clover III.
5. Rye.	Manured fallow.	Rye I., with clover.	Clover I.	Clover II.	Clover III.	Rye II.	Potatoes manured.	Oats, spring rye & peas for green soiling	Lupines & spergula.	Rye III.
6. Rye.	Potatoes manured.	Oats, spring rye & peas for green soiling.	Lupines and spergula.	Rye III.	Manured fallow.	Rye I., with clover.	Clover I.	Clover II.	Clover III.	Rye II.
7. Oats, rye & fallow, to be regarded as clover I.	To be regarded as clover II.	To be regarded as clov. III., but is vacant & fallowed for	Rye II.	Potatoes manured.	Oats, spring rye & peas for green soiling.	Lupines & spergula.	Rye III.	Manured fallow.	Rye I., and clover.	Clover II.

ROTATION OF CROPS, &c.—Continued.

Condition in 1860.	1861.	1862.	1863.	1864.	1865.	1866.	1867.	1868.	1869.	1870.
8. Some oats and potatoes, to be regarded as rye I., with clover.	To be regarded as clover I. but is vacant.	To be regarded as clover II., but is vacant.	To be regarded as clover III., but is vacant; fallow'd for.	Rye II.	Potatoes manured.	Oats, spring rye & peas for green soiling.	Lupines & spergula.	Rye III.	Manured fallow.	Rye I., with clover.
9. Vacant and rye.	Lupines and spergula.	Rye III.	Manured fallow.	Rye I., with clover.	Clover I.	Clover II.	Clover III.	Rye II.	Potatoes manured.	Oats, spring rye & peas for green soiling
10. Vacant, some rye; to be regarded as clover II.	To be regarded as clover III.; vacant, fallowed for	Rye II.	Potatoes manured.	Oats, spring rye & peas for green soiling.	Lupines and spergula.	Rye III.	Manured fallow.	Rye I., with clover.	Clover I.	Clover II.

As rye constitutes the cereal food for the millions in Prussia, it will be observed that in the course of rotation, and in the general system of farming, much more attention is bestowed upon it than there is upon wheat or barley.

There is considerable underdraining, or thoroughdraining, in Prussia, mostly, however, in the stiff clays. The proper management of the clay soils seems to be one of the most difficult problems in modern agriculture. In the province of Prussia there is considerable clay, and it is managed somewhat as follows: It is well manured, and everything plowed in which has a tendency to make the soil mellow and porous, such as the (horse) bean stalks, buckwheat straw, &c. It is plowed four or five times before seeding; after the last plowing a clod crusher or roller is passed over it, and then a plank some eight feet long, and twelve to eighteen inches wide, and two inches thick, is attached to a span of horses and passed over it to level it; then well harrowed, and, if wheat, it is generally drilled in. Where it is not underdrained it is plowed deep and plowed into narrow " lands " of four to six feet wide. Loamy lands are plowed in lands twenty to thirty feet wide. Where these clays are sown broad-cast the seed is harrowed in and then rolled. The kind of plow yet retained in this province, and which appears to defy competition with the best and most improved English or American plows, is (to an American,) a very awkward appearing implement called a " ZOCH." It is an implement of which a better idea can be given by an engraving than by any description in words.



THE ZOCH.

As will be apparent from this engraving all the implements used in agriculture of German or English manufacture are very heavy, and consequently present an awkward appearance. Europe lacks our hickory, tough ash and oak, and has nothing to substitute for them. All the wood used must be heavy in order to give the required strength, and then they do not know how to produce the malleable iron, which is so extensively used by us. The fields of lupines, rape, peas and (horse) beans presents a novel sight to an American—the rape is grown for oil and cake, just as flax was, and in some places yet is, with us. The lupines, peas and beans are a substitute for our Indian corn, which does not mature there, but is grown to a considerable extent as a green forage plant.

The lupine is a plant belonging to the family of *Leguminosæ*, in Botany, or the "*pea*" or "*pod bearing*" family of plants, and is a native of the shores of the Mediterranean. Although the plant was known to the Greeks under the name of *Thermos*, and used by them not only as an article of food, but also medicinally, esteeming them vermifugal and emmenagogue, &c., (*Dioscor.* lib. 1, c. 132,) and by the ancient Romans were grown on the poor, dry plains, and in the time of Pliny were ploughed under as an ameliorating crop for the improvement of the land, yet were not introduced into Germany until the commencement of the present century. In 1810 Baron Charles *von* Wolffen made an agricultural tour into the south of France, saw them cultivated there, and on his return introduced them on his estate at Pietzpuhl, near Magdeburg, in the province of Saxony. It is ploughed in when in bloom, when it is intended to be used as an ameliorator. It is said to derive its name from *lupus*, a wolf, because it devours the substance of the land on which it is grown, that is to say, it exhausts the land very rapidly of its alkalies. But this very fact renders it particularly useful for the agricultural purpose to which it is applied. The long tap roots strike deep into the ground and take up whatever they find there, and thus the alkaline substances are brought up, and when the plant is plowed in these substances are within the reach of more shallow rooting crops. The great advantage which it possesses over the clover tribe is, that it flourishes and produces good crops on poor, sandy and other thin lands. It can withstand drought, but not the cold—it is readily nipped by spring frosts. There are three varieties, and each of these have sub-varieties, the chief varieties are white, yellow and blue. The *white* does not mature in Germany, and is used entirely as a green-soiling food. In Naples it is used for food for horses, and in Sicily and Tuscany the fruit is used on the table. It requires a better soil than any of the others; it succeeds best on a sandy loam. The blue lupine succeeds best in a loam, has a straight stem and very seldom branches; the yellow lupine flourishes on sandy, gravelly soils, the stalk is much branched, yield well, but must be harvested whilst the pod is yet green, when dry the pod bursts with the slightest pressure, and great loss ensues if harvested when ripe. Cattle and sheep are very fond of the herbage, and even dry stalks, whilst the fruit itself is excellent food for sheep—lambs a few days old eat them *voraciously*. Clover and other cultivated forage plants can be grown among the lupines without any detriment to the latter.

The really and absolutely poor soils of Germany compel the farmers to grow every plant which cattle will eat as forage, therefore places may be found in which the TRIFOLIUM agrarium, or field trefoil is grown for sheep—the hop trefoil is grown as a stubble pasture; the *none such*, or black seed (TRIFOLIUM filiforme) is readily eaten by sheep; the TRIFOLIUM ochroleucum, or yellow clover, is grown in woodlands for sheep, it is said to be very greedily eaten by them. Four kinds of melilot or sweet clover are grown; two or three kinds of lucerne are in general cultivation. Goat's rue (TEPHROSIA virginiana of Gray, but GALEGU officinalis of German botanists) is cultivated for green-soiling, and is esteemed as highly as lucerne. Esparsette (ONOBRYCHIS sativa,) is highly esteemed, and is grown with lucerne, or clover, or some other forage plant; by itself it does not appear to do well, but requires some companion to lean upon or to protect it; but when green or dry it is readily eaten by horses, cattle and sheep.

The buck bean or bitter clover (MENYANTHES *trifoliata*) is readily eaten, and is still cultivated. The LOTUS corniculatus, or horned clover, is found in the mixture of pasture grasses; it is said to be much liked by cattle, and that the butter made from cows who have pastured on it is very yellow, and a peculiarly agreeable odor, as well as excellent flavor. The ANTHYLLIS vulneraria, or wound clover, is readily eaten by cattle and sheep, is cultivated in pastures in very rolling or broken lands. It was formerly much cultivated as a medical plant.

The VICIA sativa, or forage vetch, is much cultivated as a mixed forage plant—generally grown with oats or barley—the cattle are very fond of it either cut green for green soiling, or dried as hay, and it is claimed that it increases the quantity as well as improves the quality of the milk. It may be sown either in the spring or fall; if it is intended for seed then it must be sown in the spring on rich and somewhat moist soil. About twenty bushels of seed is produced per acre, and one and a half to one and three-fourths tons of hay. The VICIA cracca, or bird vetch, vegetates very rapidly and grows very rank on almost any soil—it is considered a good forage plant. The vicia sepium is much used to sow in the spring where the esparsette or lucerne has failed to come up. The CORONILLA varia, is grown in pasturages. The LATHYRUS pratensis, or "everlasting pea," is grown in meadows and pastures, but is mostly grown as a mixed forage plant, either with grass or clover, or with oats, rye and barley as green-soiling forage. The LATHYRUS *tuberosa* is considered a weed in the cereals, yet the leaves of it are freely eaten by stock; the tubers or roots are voraciously devoured by swine; and among the poorer families are either substituted for coffee or mixed with it. They are planted in a well-manured soil, in the spring, are put in in rows nine inches apart, and are once or twice hoed, and are harvested before the autumn frosts; they yield some 100 to 120 bushels per acre. LATHYRUS venosus, or veined pea, is highly commended, it attains a hight of six feet, is a rapid grower, is much liked by sheep, and makes a capital green-soiling forage for cattle. It is cut as soon as the pods are formed; when cut for green-soiling it yields two crops in a season; it withstands all manner of weather, and is in its prime at the end of three years. It flourishes in all soils, and is sowed in March or April. Its beautiful scarlet flowers gives the field a very attractive appearance.

Sanguisorba officinalis, or Burnet, also known as Saxifrage, is esteemed a good meadow plant; sheep are fond of it; the young leaves are used as a salad, and, with a solution of zinc, make a beautiful "fast" lilac dye for wool, silk or cotton. The Pimpinella Magna, or Great Pimpernel, is esteemed a very nutritious forage plant, and is especially acceptable to cattle and sheep. It flourishes on almost any kind of soil, but is mostly grown in limy regions; it withstands the greatest heat, as well as the severest cold, and yields several "cuts" or crops a year; it is a rapid grower, grows and keeps green when covered with snow, and ripens its seed the second year. It is chiefly grown in combination with meadow grasses or plants. The small pimpernel (P. Saxifraga) is grown in meadows and pastures, and is believed to increase the flow of milk. Polygonum bistorta, one of the knot-grass buckwheat or bind weed family, is also cultivated; cattle, sheep and goats eat it, when they can get nothing better, but horses will not touch it.

Spinatia sativa, or common spinach, is well known in this country as a kitchen-garden plant, but it is at the same time esteemed an excellent forage plant in Germany. As soon as the cereal harvest (wheat, rye, barley, &c.,) is gathered, the stubble is turned and sown to spinach. It will attain a good growth before winter, and becomes a good green fodder in April. It may be cut twice during the season, and then is yet a good sheep pasture. Ohio farmers will, however, always prefer the blue grass (poa pratensis) to this plant. Buckwheat is grown for table use, but the Tartarian buckwheat, which is a very poor kind indeed for the table, is much commended for forage. The Polygonum Sieboldii, or Japanese buckwheat, is said to grow five feet high, and is much relished by cattle; it is cultivated in some portions, although I did not see any. The P. aviculare, or bird knot-grass, is extensively grown in fallow pasture fields; it is said to enrich the milk; birds are fond of the seed. Here in Ohio it is regarded as a nuisance.

During the rebellion, and the consequent high price of coffee, many things were palmed off on the soldiers, and used in private families as "substitute" for coffee. Many recommended the "chicory," or succory. For many years past I was well aware that the "*coffee extract*" of commerce was an extract of chicory, and when in Germany I endeavored to learn all I could about this plant. The green root is used in Germany as a salad, and the dried root is roasted, or "burned," the same as coffee berries, and a coffee made of it. The extract is made by boiling down the juice as we boil sugar water to make syrup. A good, rich, deep soil is selected, and about ten pounds of seed sown on the acre in April; the roots remain in the ground and flourish for ten to twelve years, withstanding cold, heat, frost, wet, &c. The tops are mowed off four times a year and fed to cattle and sheep. Cattle eat them with as much avidity as they do cabbage leaves. The first cutting of the season is usually in April.

Gallium mullugo, cleavers, bedstraw, or goosegrass, abounds in meadows and pastures; is not found in the United States; is much relished by cattle, and it is said to increase the flow of milk, and to give both milk and butter an excellent flavor. Spirea ulmaria, double meadow sweet, is voraciously eaten by cattle when green and tender, but when dried no animal will touch it. The cowslip primrose (primula veris) is encouraged in pastures and meadow, because it is among the earliest plants in the spring which are sought for by stock. The poorer class of Germans gather the flowers, dry them, and use them to make a tea. The very palatable primrose wine is made through fermentation of the flowers in common wine, mixed with sugar and citron. Spergula pentandra, spurrey, and S. arvensis (corn spurrey), are considerably cultivated on sandy soils, and are regarded to have the same relation to sandy soils that clover has to the heavier and better soils. The spurrey does well on soils other than sandy, provided they are thin or light; it will do well on the very poorest soils where no other forage plants will grow, provided the soil is clean and porous. It yields a good crop of hay, and is also an excellent pasture. For sheep pasture it is sown from the first to the middle of August in the rye stubble; when it is grown as a substitute for clover, it is sown about the end of April. When made into hay it is cut when in bloom; cows fed on it, yield butter having a slight garlick taste and smell. Some farmers prefer the spergula nodosa or knotted spurrey to the above varieties.

The caltha palustris, or marsh marigold, is much encouraged in swampy places. Cows eat it readily. The flowers, or rather buds, are eaten at table, prepared the same as capers. The dandelion is also cultivated; about two pounds of seed sown per acre; cattle and sheep eat it. The Germans believe that it increases the flow of milk, and gives the butter a peculiar flavor. The common Comfrey symplytum officinale is readily eaten by cattle and sheep; the leaves are cut four times a year and fed to stock in the stables. In mountainous districts the Scorzonera hispanica, or Spanish viper grass, is cultivated and much relished by cattle in its young and tender state; the roots are served on the table as vegetables. The stalk grows to a height of three feet; it branches, and has broad, long leaves; the root is black externally, but white internally, and is used the second year. Poterium sanguisorba, or burnet, is sown with other forage plants on elevated places; it shoots early in the spring, and is much relished by sheep. It is also cultivated in gardens for salads and soups.

In addition to the above, the following have been cultivated in recent times for forage plants, some of which have many advocates, viz:

a. Spartium scoparium, unknown in America. *b.* Ulex Europeus, also unknown. *c.* Echinops bannaticus, unknown here. *d.* Oenothera biennis, evening primrose, has succeeded well as a green forage plant. *e.* Hesperis mationalis, (rocket) of the mustard family, gives two crops annually beside the seed crop. *f.* Parsley is grown, mixed with other forage plants, for diseased sheep; they eat it readily. *g.* Chenopodium quinoa, goose foot. *h.* Tanacetum vulgare (tansey) is fed green to swine. *i.* Valeriana locusta olitoria (unknown here) is very early and productive on cold heavy clays, withstands the severest summers and winters, and is fit for forage by the middle of April. It is sown in August and September, twenty-five pounds per acre, and ripens in July; is believed to improve the quality and augment the quantity of milk; the plant is very fragrant. *k.* Nuphar luteum, yellow pond lily: the leaves are fed to the cattle; the roots dug are voraciously eaten by hogs, cattle and horses. *l.* Apium graveolens (celery) is claimed to be more nutritious than the best clover. Milch cows appear to be very fond of it, and it increases the flow of milk as well as increases the quantity of it. *m.* Sinapis alba (white mustard) is a rapid grower, and readily eaten by cattle; it is mowed two and, in good seasons, three times as a green forage plant. *n.* Heracleum sibericum, one of the parsnip family, unknown here, is sown thin in April; the next year it sends forth an immense amount of foliage, which may be cut three or four times during the season. It is more especially grown for ewes than any other kind of stock. *o.* Orobanche major, unknown here, but is of the bignonia family; is very carefully cultivated in Styria for milch cows. *p.* Eryngium campestre, button snake root, another of the parsley family, chopped and boiled, is said to increase the flow of milk. *q.* Galinsogea parviflora, imported from China, grows wild about Boston, New York and Philadelphia, probably introduced from shipping; is very rich in foliage, and sheep seem very fond of it; but the Germans fear it will prove to be a troublesome weed. *r.* Goldbachia torulosa, unknown here, attains a height of three or four feet in the lightest soils; sheep are very fond of it. *s.* Nigella hispanica, Spanish fennel flower—a crow-foot —is sown about a peck per acre, grows rapidly, and attains a height of two and a half to three feet; is cut green for forage. *t.* Ornithopus sativus, seradella, unknown here; is in Germany a capital forage plant on sandy soils, but it will not tolerate any weeds. It is sown from the middle of March to the first of April; fifteen to twenty pounds of seed are required. It is at first a very slow grower, but by July has covered the field; it does best when sown as a mixed forage plant. If sown early, sow with spergula or spurry; if sown late, sow with buckwheat. It can be fed green, or as hay—either way it is considered fully equal to clover, and like clover, can be cut twice in a season. *u.* Bunias orientalis, Zackenschote German, unknown here; is an early plant and rapid grower in sandy soil; it is effectually drought-proof, and is much liked by cattle. It is sown pretty thick, so as to give length to the plants and leaves at the top; it is cut green three times during the year, and is said to be very rich in nitrogen and minerals.

The meadow grasses are always made up of a mixture of grasses, including red and white clover, timothy, fox-tail, sweet-scented vernal grass, smooth-stalked meadow grass, orchard grass, Italian rye grass, red top, &c., &c.

I have presented this list of forage plants rather to show how Germans economize in every direction, and make use of everything which can be used, than to urge Ohio farmers to cultivate the plants named.

Having now mentioned an outline of the meteorology, geology, soils and mineral resources, as well as the population and organization of labor in Prussia, the next in order will be a statistical statement of the number of horses, cattle, sheep and swine. These are as follows:

PRUSSIAN STATISTICS, 1861.

HORSES.

Colts from 1 to 3 years old	297,295	
Horses from 3 to 10 years old	767,095	
Horses over 10 years old	615,265	
Total		1,679,655
Horses, per square mile (English)		14½
Number of persons to ONE horse		10 4-5
Horses employed in Agriculture over 3 years old		1,214,532
Agricultural horses, per square mile		10½

CATTLE.

Bulls	83,079	
Oxen	680,431	
Oxen, per square mile (English)	5 9-10	
Cows	3,382,551	
Cows, per square mile	29½	
Young cattle from 6 to 2 years old	1,488,436	
Total cattle		5,634,497
Cattle, per square mile		49
Number of persons to each animal		3½

SHEEP.

Thoroughbred merinos	6,550,776	
Thoroughbred, per square mile	57	
Half-bred merinos	7,191,613	
Common sheep	3,692,476	
Total sheep		17,434,865
Sheep, per square mile		151 8-10

SWINE.

Over six months old	1,816,141	
Under six months old	893,552	
Total		2,709,693
Per square mile		23¼

STATISTICS OF HORSES IN EUROPE, 1860.

	Horses.	On square German miles.	Horses to 1,000 inhabitants.
England	2,250,000	373	79
France	2,818,496	293	78
Russia	16,250,000	181	274
Prussia	1,629,000	318	94
Bavaria	339,275	244	74
Wurtemburg	79,741	225	45
Saxony (Kingdom)	95,624	351	47
Saxe Coburg-Gotha	6,347	178	42
Saxe-Weimer-Eisenach	15,106	228	57
Brunswick	26,059	387	95
Duchy of Hesse	41,463	240	55
Anhalt Dessau	9,700	303	84
Anhalt Bernburg	3,229	245	73
Baden	72,817	262	53
Mecklenburg Strelitz	17,046	476	171
Mecklenburg Schwerin	84,467	364	155
Oldenburg	33,413	290	117
Hannover	213,946	306	116

BAVARIAN STATISTICS, 1862.

Horses	348,000
Cattle	2,535,000
Sheep and goats	1,258,000
Swine	495,000
Square miles	28,435
Inhabitants	4,689,837

On 10,000* acres of ARABLE land:

	Inhabitants.	Horses.	Cattle.	Sheep.	Swine.
Prussia	5,838	530	1,777	5,496	854
Saxony	12,560	540	3,603	2,100	1,526
Rhenish Provinces	10,532	416	2,898	1,628	938
Hohenzollern	5,291	448	3,827	1,098	1,045
Leipzig	10,572	672	3,288	3,348	2,165

* These are Saxony acres and are equivalent to 13,689 English or American acres.

According to Porter's "Progress of Nations," there were in England and Wales 140,374 carriage and saddle horses, 147,766 draft horses, 1,819 livery horses, 37 horses for bailiffs, 1,476 race horses, 447,928 brood and agricultural horses, 21,586 ponies less than 13 hands high, and 348 donkeys.

In France there were 1,171,930 stallions and geldings, 1,194,231 mares, 352,635 colts.

Prussia, 253,734 colts, 684,671 horses from four to ten years old, 612,471 horses over ten years old.

Bavaria, 23,317 stallions, 155,461 mares, 115,334 geldings, and 45,163 colts.

Wurtemburg, 3,739 stallions, 38,332 mares, 37,640 geldings, 5,968 stallion colts, 8,443 mare colts, 1,874 gelding colts.

Saxe-Coburg-Gotha, 1,241 stallions 1,280 mares, 3,836 geldings.

Saxe-Weimer-Eisenach, 2,358 colts, 12,254 work-horses, 494 pleasure-horses under three years old, 704 stallions, 8,364 geldings, 3,680 mares.

Brunswick, 863 stallions, 13,798 mares, 8,129 geldings, 2,095 colts under two years, 1,174 colts from two to four years old.

Duchy of Hesse, 34,032 horses over four years old, 7,641 colts.

Anhalt Bernberg, 3,593 horses, 336 colts.

Mecklenburg Strelitz, 12,683 horses over four, and 4,363 horses under four years old.

Oldenburg, 110 brood stallions, 7,292 brood mares, 15,272 other horses, 4,773 sucking colts, 3,584 one year old colts, 2,382 two year old colts.

CHAPTER IV.

MODE OF AGRICULTURE.

During the four weeks in which my headquarters were in Berlin, I attended an annual meeting of the Agricultural Society of Mark Brandenberg, held at Prentzlau; the International Exhibition, at STETTIN, in Pommerania; I visited also the "*Oderbruch*," a Paradaisical valley, of the Oder, near Frankfurt on the Oder; visited Templehof Mariendorf; the estate of *von* Lütersdorf, the station at Juterbogk, and other estates and places. The discussions of the Agricultural Societies at Prentzlau and Stettin, in conversation with proprietors of estates, with small farmers; visits to the Agricultural Bureau, in Berlin; conversations with Geheimrath Wehrman, Prof. Karl Kock (Prof. of Botany of the Agricultural University, in Berlin,) and conversations with agriculturists generally, at the several exhibitions, as well as an examination of some of the published Agricultural Societies reports, the following views of the agriculture of Prussia have been gleaned: It must be remembered that much of the territory of Prussia is a sandy deposit, interspersed here and there with a clay formation. The province of Saxony, a part of Prussia, is entirely different in its geological formations and character of soil from the other portions of Prussia, except the Rhenish provinces. The province of Saxony reminded me strongly of Clark, Green, Warren, Butler and Montgomery counties, in Ohio.

The crops, rotation and system of cultivation varies with the soil, therefore there can be no *general* description which will convey a good idea of it, and for that reason I have concluded to give my observations, and what I learned, more in the form of memoranda than in the form of a descriptive essay.

PROVINCE OF POSEN.

TILLAGE OF THE SOIL.

In the neighborhood of Frauenstadt, near the banks of the ODER, the usual depth of the furrow in highly cultivated loam, is eight to nine inches, for grain crops, and ten to twelve inches for forage crops and oil-bearing plants. A deeper tillage or loosening of the subsoil by means of the mole, subsoil or spading plows is adopted only for beet and turnip culture. In tilling the soil *one* horse and one yoke of oxen, or if horses only are kept, *two* horses are required for every 100 morgen (62 acres.) The soil is as often plowed for grain crops as in Holstein.

BROMBERG.

On the banks of the WEICHSEL, and in a *Wealden* formation, the single roller is in very general use. It consists of a series of cast-iron rings, with bevel edges, strung on the axle. It is *claimed* that it does not leave the soil closed or compressed, but admits air and moisture, and has a far more salutary effect than the smooth roller. Mr. BERTELSMANN, the proprietor of a large estate, instituted a series of experiments with a double and a single roller, with the following result, viz: The wheat crop was very thin; the clover and grass crops were not harrowed, but "*ringled*" in, and this partly cross-wise. The seed was well covered, and so pressed that it germinated rapidly and safely—on the portion ringled cross-wise it came up more densely. The plants which were lifted a little were pressed down again by the roller, but none were injured. Clover was sown among rye with the same success, and once "ringling" was sufficient. Field peas and vetches sown on the rough furrow and once ringled did not differ in growth or product from those growing by the side of them, which were harrowed in. One portion of the field, intended for beets, was harrowed thrice and then "ringled" down compactly, the second portion was simply twice harrowed, the third portion was harrowed twice, ringled, and then harrowed again. The beet seed was planted one-half inch deep by a marked line. On the first portion the beets came up tardily and irregularly, much better on the second, but best of all on the third. Oats were sown on the rough furrow, then harrowed twice, after this ringle-rolled, by this process the clover seed sown was pressed into the earth. The result was fully as good as was anticipated.

IORDONNOWA.

Mr. Schartz, Counsellor of National Economy, related the following as being the plan generally adopted in relation to potatoes: After the field is plowed and obliquely harrowed, lines are drawn across the field, and furrows made with the shovel plow on these lines, then cross-lines are made and are followed by cross-furrows, the seed potatoes are dropped where the furrows cross each other, and are lightly covered with a spade. Then the ridges are split apart with the shovel plow and the potatoes once more covered. When the tops of the potatoes appear above the ground they are once harrowed obliquely with a light harrow and immediately hilled in, in the same direction, so that the tops are entirely covered with soil and are not exposed to the effects of the weather, which often, at that period, is very inclement. The potato is developed rapidly and vigorously, and the weeds destroyed. When the plants are high enough they are hilled for the first time, crosswise, and in about fourteen days later, if large enough, are hilled again in the same direction and for the last time. It is claimed that by this method of cultivation the soil remains exposed to the favorable influences of the atmosphere, and the weeds are much more easily destroyed.

PROVINCE OF SAXONY.

In the districts where sugar beets are grown, and extensive distilleries are established, the highest culture has become indispensable, and the example is not lost on neighboring estates. The new and improved implements facilitate this; the improved Bohemian, English and American plows, and more especially the subsoil plow facilities, and deeper plowing or tillage. In the low, stiff clays of Seehausen the American swing plow does not seem to do well, and the Scotch or Grignon and other plows are used only when the drought and great wet do not prevent. As a rule the depth of tillage is five to eight inches; for hoed crops and sugar beets, ten inches and upwards. To attain this depth, the usual practice is, to have two plows follow each other in the same furrow. For deep tillage the Kleeman mole plow is highly commended. In some districts a light paring plow is used for turning pastures, or clover sod for winter crops, &c., this, however, requires to be followed by a plow of peculiar construction, so as to produce the greatest compression of the soil. The

Bedford and Scotch harrows, composed of two or more sections, are used, also the Crosskill clod-crusher, and the stone-roller.

In spring time a flock of sheep are often turned on wheat and rye crops with good effect. In the district of Sondershausen they seldom plow more than five or six inches deep, but invariably stir the subsoil; and it is claimed that grains, clover and peas do much better with this kind of tillage than if the soil is plowed ten or twelve inches deep. In the lake district of Mansfield the fields are plowed shallow, but are kept clear of weeds, are said to yield larger crops of potatoes than when plowed deep. In Muhlhausen and other districts, they prefer planting potatoes after the marker—a plow making a shallow furrow—rather than in the furrow of deep plowing. In Bitterfeld, when potatoes are to follow rye, the stubble is plowed under immediately after harvest, lupines are sown and plowed in, in the fall as manure for the potatoes. On the more elevated flat soil in the district of Ranis, the soil is plowed into beds of three or four furrows, the potatoes planted in the depression between them and covered. In Dachwig, potatoes hilled with the hoe thrive the best. Near Erfurt—the richest and best tilled soil in all Germany—they select the best land for poppies, make it as clear as possible by previous crops, manure it copiously with sheep manure, and plow this manure in pretty deep in the fall. Next spring the ground is twice plowed: first time shallow, next time deep, and then well harrowed; the poppies are sown in April, and when of a proper size are hoed and the superfluous plants removed; if they are too dense or too thin the yield is not as good as when a proper density obtains; they are hoed three or four times during the season. A very fine salad oil is made from the seeds. In the district of Bitterfeld-Delitzsch, after the mole-hills have been carefully spread in the spring, the meadows are well harrowed to renovate them and promote the growth of grass. It is claimed that a light covering of straw, during the winter, promotes the growth of the grass in spring, and pays double the cost, as the straw may afterwards be used for litter in the sheep folds.

ROTATION OF CROPS.

Province of Prussia.—The larger farmers in this province, as a rule, have the following rotation of crops, viz: Fallow, rape (manured), barley, winter grain, clover; there is, however, a great preponderance of forage crops.

Province of Saxony.—The prominent geological formations of the Province of Saxony are Lias, Keuper, and Muschelkalk—formations nowhere found in Ohio. The soil necessarily partakes, in a greater or less degree, its character from the formations where it is situated or from which it is derived. Hence, in the Province of Saxony may be found a greater variety of good soils than in any corresponding area it has been my fortune to visit. The rotation of crops is such as experience has proven to be best adapted to the particular soil cultivated—hence, there is no *general* system of rotation; and as a matter of agricultural curiosity, I will devote a page to reciting the different kinds of rotation practised in the one province. In many places the three field system (*Dreifelderwirthschaft)* yet prevails; that is, the farm is divided into three fields, two are cultivated and the third lies fallow in rotation.. In *Obisfelde*, two or three successive grain crops are grown, and then the field lies in open fallow for two or three years. In Seehausen, on low lands, the rotation is (1) fallow, (2) oil crops, (3) wheat, (4) clover or pulse; on high lands, (1) fallow, potatoes, peas (manured), (2) rye, oats, barley, (3) lupines or clover, (4) rye. In Stendal, rape, cole and lupines are grown before winter grain, and hoed crops before summer grains. In Loburg and Schildau, on light soil, (1) potatoes, (2) lupines, (3) rye; in Grosz-Apenburg, (1) winter grain, (2) hoed crops, (3) summer grain, (4) fallow. In Obisfelde, on light soil, (1) lupines, (2) rye, (3) potatoes, (4) oats, (5) fallow; the more intelligent farmers apply manure with great success after potatoes for oats, when clover or grass are to follow. The lupine is frequently grown before potatoes; lupines are also sown in rye stubbles, and plowed under as green manure for oats; and for the same purpose they are sown among rye when it begins to head. In Schildau, on heavier soil, the rotation is, (1) rape, (2) wheat, (3) peas, (4) rye, (5) clover, (6) wheat, (7) potatoes, (8) oats, (9) white clover; *or* (1) rape, (2) wheat, (3) potatoes, (4) oats, (5) peas, (6) rye, (7) green clover, (8) wheat, (9) potatoes, (10) summer grain, (11) white clover. In Alsleben the following has proven to be the best rotation: (1) winter grain, (2) turnips, (3) summer grain, (4) clover; *or* (1) winter grain, (2) turnips, (3) summer grain, (4) turnips, (5) summer grain, (6) clover. In the Saal district fully one-third of the area is grown in sugar beets. In Reindorf the rotations are (1) peas, vetches, beans, poppy, mixed crops, &c., with copious application of barn yard manure, (2) wheat, rye, (3) hoed crops, (4) barley with clover, esparsette, clover and oats, (5) clover, (6) clover partly used as pasture, (7) rape, wheat, rye, with barn yard manure, (8) rye, barley, hoed crops, (9) oats. In Sangerhausen fields often are manured, and barley and rye are sown in them. In Nordhausen the rotations are clover pasture fallow in seven fields, viz: (1) winter grain (manured), (2) barley, (3) clover, (4) winter grain (manured), (5) peas, beans, &c., (6) oats, (7) clover pasture; *or*, with rape in eight fields, viz: (1) winter rape (manured), (2) winter rye, (3) barley, (4) clover, (5) wheat (manured), (6) peas, potatoes, (7) oats, (8) clover pasture; on better soils, with hoed crops in seven fields, viz: (1) hoed crops, (with manure,) (2) barley and oats, (3) clover, beans, (4) winter grain (manured), (5) pulse, (6) winter grain, (7) summer grain. In Neuschmidtstedt, (1) fallow with fall manuring, (2) winter crops, (3) hoed crops, (4) summer grain, (5) clover, (6) clover with half manuring (light manuring), (7) winter crops, (8) hoed crops, (9) summer grain. In Sonderhausen, on good and medium soil, (1) rape, (2) rye and wheat, (3) peas, beans or poppy, also hoed crops, (4) rye or wheat with clover, (5) clover, (6) clover for pasture—or instead of clover, oats or barley with clover, (7) clover, (8) clover or pasture; on inferior soils, after fallowing with manure, (1) rye, (2) peas and hoed crops, (3) barley or oats with clover, (4) clover manured, (5) wheat, (6) oats. In Ranis, where the six-field rotation obtains, there are (1) hoed crops, (2) summer crops, (3) clover, (4) winter crops, (5) pulse or peas, (6) winter crops. In Schleusingen, on two large manors having a very heavy soil fit for clover, the seven and nine course rotation have been adopted with decided success. On the hospital manor of St. Kilians, where the soil is mostly very sandy, the six-course rotation prevails, and nearly one-half of the area is used as a sheep pasture for three years and then broken up and cultivated in suitable crops.

CHANGE OF SEEDS.

I made many inquiries and collected quite a number of items, facts, or at least *supposed* facts, in relation to the change of farm crop seeds, but as it would require entirely too much space to give the details of a tenth part of them I must content myself by giving a simple statement of the conclusions I arrived at, based, of course, upon the statements detailed to me. It appears that any farm crop as wheat, for example, may be much improved by culture on a farm with appropriate soil; but there is a limit to the improvement of this variety, which I will designate as variety A, on this farm, which I will designate as farm No. 1. After the limit of improvement has been attained on No. 1 it will then, for a series of years, remain stationary, and after that, even with the best culture, will deteriorate. But if, when it has attained its limit on No. 1, and is then transferred to a farm No. 2, with equally good or better soil, it appears to be susceptible of still further improvement until it reaches the limit of No. 2, then it will improve again on farm No. 3, &c. Whilst the variety A is deteriorating on farm No. 1, the variety B, under proper treatment from farm No. 2 or 3, will improve by the side of it. Hence, the German farmers have adopted a system of seed exchanges and are anxious to obtain seeds from foreign countries. They seem to have given this subject a great deal of attention, and take into account the kind of soil, meteorology, and level above the sea where the seeds were grown, and I am inclined to think they make it a point to obtain good seeds from elevated regions grown on an inferior soil. The exchanges are conducted mostly by the local agricultural societies. The Sonderhausen agricultural association have made many experiments in the exchange of seeds, and now recommend, as the result of their experience, that "seeds from a good rich soil, to a cold and indifferent one is profitable, and *vice versa!*"

Mr. ——— pointed out some fields to me and said, "these fields have been in cultivation since the days of Charlemagne." "Then," said I, "the doctrine that LIEBIG is advocating, that the German system of agriculture is a system of robbery, and his doctrine of the exhaustion of the soil is *not* true?" "Liebig is a great man," replied Mr. ———, "and has done much for agriculture, but the good GOD has so formed the soil that with proper treatment and management it will yield food for man as long as he exists on the earth. As for German Agriculture, I must tell you that we have many hypotheses, speculations, and some theories, and are by no means as practical a people as you are in America, and hence we often must do indirectly that which we could not accomplish directly. For many years England imported vast quantities of bones from Germany, our farmers did not see any soil in these bones, and therefore cheerfully sold them because they received money for them. We all understood that England derived great benefit from these bones, but we, in our speculations, came to the conclusion that the climate and soil of England made bones a very useful auxiliary, whilst they would have no beneficial effect in Germany. Liebig's doctrine set us to *thinking*, and it is no matter whether his doctrines are right or wrong, the moment you can get farmers to *thinking*, *investigating* and *discussing*, truth will be evolved, correct principles govern, and laws of nature be discovered. The effect of Liebig's doctrine was to stop the exportation of bones, and since we have applied them in their various forms as manure, our crops have greatly increased. In fact, before Liebig's time we did little else in the way of manuring than to apply barn-yard manure, lime and plaster; but now we not only apply these as bountifully as before, but in addition apply bone dust, superphosphate, guano, Chili saltpetre and potash. The world will never pay Liebig what is due to him; and here in Germany it is a difficult matter to get learned men to acknowledge the benefits he has conferred on science and agriculture, because most of these men are jealous of him, envy him the reputation he has justly earned, and each one seems to have some pet theory or doctrine of his own hatched up in opposition to Liebig; but even if he at times has been mistaken, yet his entire course has been productive of much good."

But I have been wandering from the subject, and, therefore, will return to my notes on

MANURING.

Meadows situated on the banks of rivers are usually overflowed in the spring and a rich sedimentary deposit is left upon them, so that they very seldom require manuring; but the upland meadows are manured with compost or liquid manure, with excellent results. In some districts wood ashes and guano are mixed for manuring. In Loburg ashes and plaster are added after and sometimes before the liquid manure is applied; in Liebenwerda bone dust and guano are applied with better effect than guano and ashes.

Since the culture of forage plants has become more extensive, stock has been better fed and larger quantities of better manure have been made, and which has been treated and kept with more care in the stable as well as in the barn-yard. In Altmark the manure remains in the stable until it is hauled on the field. In Neuhaldersleben the stables have been built so as to have an apartment specially for manure; but it is believed that this plan is injurious to the animals—hog's manure is deemed to be specially noxious. In order to conserve the manure in the barn yard, it is mostly trodden down compactly and strata of earth, plaster and lime are strewed between it with good results; in Ranis calcareous sand is substituted, in Halberstadt mould and peat are used. In Obisfelde the horse, cattle and hog manure is frequently thrown together in heaps, with strata of peat in equal parts. Dry peat is also used in long straw for litter in sheep folds—this prevents the evaporation of the ammonia. As a rule, however, earth is strewed in the sheep folds and the sheep dung is rarely hauled away, except it is taken directly to the field and plowed under. In Halberstadt sheep dung is daily strewed over with a mixture of 2 cwts. of plaster and 2 cwts. of bone dust to 120 cwts. of manure. Barn-yard manure is generally used for forage and hoed crops, winter grain, pulse and rape. In Querfurt it is found that manured barley yields less than unmanured in dry seasons, unless the manure has been plowed under the previous year. In Oschersleben about *six* tons of manure are applied per morgen (⅝ of an acre), but in Ranis 10 to 15 tons are applied every three years—although some very successful farmers apply this quantity every two years; and they give as a reason that the land is very level and contains lime and sand largely. As a rule the manure is spread and plowed under as fast as it is hauled on the field, except in Sonderhausen, it is hauled every month and spread, and then let lie until plowing time. Experience has taught them that the manure spread and lying *on* the field during winter mellows the surface of the soil and has an excellent effect upon the first crop, but very little or no effect upon succeeding ones. In Halberstadt manure is usually plowed 6 to 8 inches deep for grain crops, and 10 inches for potatoes—this is done with a four horse team; but in Dachwig it is plowed 3 to 4 inches only for grain crops. The *cost* of barn-yard manure is very relative—where stock is well kept and abundantly fed, the manure is produced at a less cost, than where stock is indifferently or poorly fed. The cost of producing a ton of manure, including straw, is estimated to cost from $1.75 to $3.25. But even at these prices, barn-yard manure is held to be cheaper, more profitable and more readily obtained than the artificial or commercial manures.

Liquid manure.—The careful collection of liquid manure in walled reservoirs, and its application, is being more generally adopted. In Erfurt this progress is due partly to a legal decree forbidding the flow of liquid manures in the gutters, and partly to the recommendations of the local agricultural society. But on many estates it is not collected. It is applied in various ways; most generally it is used for moistening the compost and dry manures, or else is mixed with peat. The most favorable results were obtained where the liquid manure was applied directly to meadows, and upon compost heaps. The results of liquid manure are not uniformly as favorable on large manors where technological branches of industry are conducted. Experience has demonstrated that liquid manure is more effective on hoed crops than on cereals. On an examination of farms competing in the culture of sugar beets, it was found that in Sondershausen the yield of beets per morgen had been increased from 450 to 800 cwts. by the application of liquid manure. In Neuschmidtstedt it has greatly increased the product of potatoes. In Zwethan it had an excellect effect on Maize (Indian corn). On some farms it has been found that the application of liquid manure surcharges the soil with salts which are too readily soluble and thus injure instead of benefit crops.

Compost.—Every kind of offal, debris, rubbish of all kinds go to the compost heap—even the soap suds from the wash room; and it is held that the greater the variety of substances put into the compost heap the more valuable it becomes, because the substances act and react upon each other and thus form more perfect plant food. Factory offal, beet pumice, apple pumice, and everything of the kind finds a place in the compost heap—hence the residences and barn yards are made and kept more cleanly whilst the compost heap is being enriched. Earth or peat is mixed with the heap and it is very frequently turned over, and after the second year it is applied to the land. The lime from burned limestone has been found to be much more efficient for agricultural purposes, than the lime from burnt mussle shells. In the fall muck is hauled on the field in neighborhoods where it can be obtained, and is plowed in with manure the next fall after having been stirred several times during the summer. The application of compost on meadows is most common and profitable; this manner of manuring has produced surprising results, nay the yield has been doubled and the quality much improved. In Obisfelde many meadows are irrigated, and on these compost has produced unexpectedly favorable results. Compost has proved to be better for any crops other than cereals.

Artificial Mineral Manures and Guano.—Of the commercial manures Peruvian guano is the most extensively used in the province of Saxony, especially in connection with bone dust and superphosphates, &c. The application of commercial manures in general has of late rapidly increased, even among small farmers. Thus in the small district of Stumsdorf, consisting almost exclusively of small farmers, there are now at least 10,000 cwts. of guano, and 3,000 to 4,000 cwts. of superphosphates used every year. The application of guano is effected by guano-strewing machines and partly by harrowing in; when plowed in deeply it is not so effective. Guano has very little effect when applied on a limestone soil. In the district of Kœthen, guano and phosphate of lime mixed in equal parts, is chiefly applied for sugar beets: on fields bearing the second crop, 1½ cwts. are applied, on exhausted fields, two cwts. and even more per *morgen*. A farmer in the district of Nordhausen, during a period of thirteen years, applied guano partly mixed with bone dust, plaster and earth, for cereals, beets and potatoes, with excellent success. In Genthin experience has proved that the constant application of guano is injurious. Farmers are of opinion that artificial manures can have a lasting effect only in connection with a due proportion of barn-yard or other vegetable manures; therefore after manuring for two or three years with artificial manures, they apply barn-yard manure exclusively and in generous quantities. In Ranis several farmers applied oil-cake as manure, and found it to be equally as efficient as guano, and that its effects were of equally long duration.

BRANDENBURG.

METHODS OF HARVESTING AND PRESERVING THE CROPS.

One or two reaping machines are all that are in this province, and I am not at all surprised that they are not more popular, because they are the heavy cumbrous *four* horse reapers made in England. Although not very pertinent to this subject yet connected with it, I will introduce here a portion of a letter written by me at Berlin, on the 13th of May, 1865, to the President of the Ohio State Board of Agriculture:

"Yesterday, in company with Privy Counsellor of the King's Ministerium, Mr. Wehrman, and Professor Karl Koch, I went to Printzlau, in northern Prussia, to attend a district meeting of the Central Board of Agriculture of the Mark Brandenburg and Lower Lausitz. Prentzlau is about seventy-five miles north of Berlin. The country from Berlin to Prentzlau is a sandy plain, and about as undulating as Madison county. There is more forest in this direction than any that I have yet traveled, but the forest is entirely of artificial growth, as they say here, which means that every tree was planted and cared for by a forester. These forests are clear of undergrowth, and the trees are all in rows. They look very fine and picturesque. The crops grown on the land are lupines, (for sheep) seradella, rye, potatoes, rape and peas. The rape is badly injured by the frost in this region, but several fields that I saw were very pretty—they were in bloom, and were a bright yellow. I do not think there is a bushel of wheat grown within fifty miles of Berlin in any direction. They grow considerable corn for green soiling, but no Indian corn ever ripens here. They plant our old "horse-tooth" corn, and do not believe any other variety will grow.

But as I set out to give you an account of the meeting, I will confine myself to that until I get through with it. When the train arrived at Prentzlau, we were shown into a large hall where seats had been reserved for Prof. Dr. Koch and myself. The Board consists of twelve members. They were seated on a platform or stage—the President in the centre. He very briefly stated the object of the present meeting, and read a number of communications on various subjects which had been forwarded to him. The treasurer then read his report of receipts and expenditures. The whole being approved, the convention proceeded to the discussion of the printed questions on the programme.

DISCUSSION OF FINANCIAL MEASURES.

Among the communications was one from the Minister of Agriculture, inquiring if any change was necessary in the law relating to mortgages, and what rate per cent should be fixed as interest for money loaned to agriculturists. This brought forth a very spirited discussion, some members (the convention numbering about fifty exclusive of the Board) insisting that a farmer could do better without money than to get it at too high a rate. Others insisted that if the rate was too low, capitalists would not lend to farmers—although farmers' mortgages are considered by capitalists *safer* than the State stocks, and therefore always have the preference. My friend Wehrman said that the matter would regulate itself, and that a fixed rate of interest would be fraught with evil consequenses, as for instance, in Westphalia, a burgomaster had some thousands of thalers to loan on mortgage, but wanted four and a half per cent.; no one would pay more than four, so after holding his money for a year he loaned it at four. In Silesia and Pommerania no one could borrow money at less than *six* per cent.; therefore, if the ministry would fix the rate at five, no one *would* borrow in Westphalia, whilst no one *could* borrow in Silesia.

One member of the Board argued that a banker or merchant could pay ten per cent. much better than a farmer could pay four; and, if the rate of interest was left an open question, that all the farmers would be ruined. A Mr. Carber (member) argued that upon a property worth 100,000 thalers, he had vainly endeavored to borrow 6,000 thalers on mortgage, but could not get it at less than bank rates, this being on *short* time, (two years,) and as he would be obliged to pay all the expenses of attorneys, appraisers and recorders, would make it cost too much, and he could do better without the money than to borrow it. It appears that money is usually loaned to farmers for fifteen to twenty years. I heard, in the course of this discussion, some very sensible remarks in relation to this thing of money lending. The Ex-President (a man of sixty-five or seventy years,) said that the fact that proprietors could borrow money, was, in many cases, fatal to them, and he believed that, in the aggregate, it did more to retard than to advance agriculture.

When a man had a pocket full of money he was very apt to indulge in things that he otherwise would do without; for himself, he considered that if a man did borrow money for farming purposes, he then should be more prudent, economical and industrious until the debt was paid, than he had been before. But the discussion, after all, resulted in nothing. It was voted to address a letter of thanks to the Minister for the honor he had done the Convention by asking their advice; but that it was a question which *they*, at *that* time, were not fully agreed on, and begged him to permit them to discuss it again at their next meeting. My friend Carber seemed to be a very sensible man, and said he would vote for the first part of the letter of thanks, but not for the last. He said that it was all nonsense for the Convention to discuss ministerial questions, when every body knew that the ministry would do just as it chose at all events; and that there were some questions of very practical importance in agriculture, and that the convention had several times indulged in lengthy and sometimes bitter discussions in matters which belonged to the ministry, and not to the Convention, and therefore would vote against asking the privilege to continue the discussion.

Breeding of Fine Cattle.—The next question discussed was the establishment of an annual or semi-annual fat cattle show, at Berlin. Mr. Herrman von Nathusius, of Hundisburg. was expected to be here and discuss this question, but he did not come; but instead sent about a quire of manuscript to be read. Nathusius is a German Yankee; it was he who took hold of and managed the Hamburg International Fair, in 1863. He is a scientific breeder, and as he is well educated, and has a good estate, unlike Hammond, of Vermont, or the Collings, of England, Nathusius publishes expositions of the rules and principles by which he is governed in his breeding operations. A friend of his told me that, for a long time, he was regarded as the butt or laughing stock of his agricultural neighbors; but one day he advertised an auction of breeding animals, and published a catalogue giving their pedigree. This was a novelty, and attracted a great deal of attention. The sale produced $18,000. This opened the eyes of his neighbors, and since that time he cannot supply the demand for breeding animals. His paper, read before the Convention, was an able one, but of local importance only.

Agricultural Machines.—The first of the general questions was passed over—there being nothing new in agriculture during the past year. The second question, "what experiments have been made with reaping or mowing machines? and what ones are commended for general use?" The agriculturists generally took grounds against these machines. Mr. Wehrman stated that he had had the honor of an official visit from, and this morning the pleasure of having as a traveling companion, the Secretary of the Ohio State Board of Agriculture; and in conversation with him learned that in Ohio there were some six or eight reaping and mowing machine manufacturing establishments; that in 1863-64 had made from one thousand and upwards of these machines, and yet were unable to fill all the orders—that the Secretary estimated that at least 30,000 of these machines were in requisition in Ohio in 1864.

A gentleman on the cars had objected to the introduction of them in Mark Brandenburg, on the ground that the fields were too stoney. The Secretary said he had been closely observing the fields all the way from Berlin, and felt certain that any farmer's son, eighteen years of age, in Ohio, would regard it almost as good as play to take a crop off of such fields with a reaper or mower.

Mr. Wehrman stated that as the Secretary was present by invitation, he would be glad to have him state whether or not he (Mr. W.) had made the statement correctly. Of course I could not make a DUTCH speech with any kind of propriety, so I simply stated that the Geheimrath Rath had given a very correct account of my statement. A dozen voices asked me to give the names of these reapers and mowers. I named over such as occurred to me at the moment, as Wood's, McCormick's, Manney's, Ball's, Champion, Seymour's, Buckeye, and then gave the names of Pritz & Kuhns, of Dayton; Whitely, Kelley, Fassler & Co., of Springfield; Warder & Co., of Springfield; Russell & Co., of Massillon; Younglove & Co., Cleveland; Aultman, Ball & Co., of Canton; as manufacturers. After I had made this statement, the President asked me to write down the names of the machines and manufacturers for the benefit of the society, and the proprietors in Mark Brandenburg. It was then resolved that measures should be taken to introduce American reapers and mowers into the Prussian provinces, but especially in Mark Brandenburg. The Germans are slow and very cautious, and not disposed to risk much, and I have no idea that anything will come out of the action of the Convention in this matter, unless our people in Ohio do as the sewing machine men have done, and that is this: Send agents over here who are good business men, men of intelligence, character and good morals, and let them go to work. Hamburg is full of American agents for Howe's, Singer's, Wheeler & Wilson's, Grover & Baker, Weed's, and other sewing machines, and they are really *coining* money out of the operation. Berlin is just as full as Hamburg. In my former letters I mentioned the system of Guilds in Hamburg; it is much the same here, and for *this reason* we can get no manufacturers here to undertake the manufacture of sewing machines, because the workmen must abandon their previous employment and prove themselves competent workmen in this new business before they are allowed to go to work; hence Americans must bring their own workmen here, if they wish to engage in manufacturing any of our exclusive American wares. There is just the biggest kind of a fortune in store for reaping and mowing machine manufacturers, if they will send competent agents here with good machines. The Germans are very friendly to Americans, and more especially since the death of Lincoln. That has brought out all their latent feeling; and now if our manufacturers of these machines have got the enterprise to come here, they can literally coin money, and a heavy trade can be opened with this part of Europe from America.

But to return to the subject of harvesting and preserving crops: Rye is cut before it is fully ripe, either with the sickle, scythe or grain cradle; it is bound in sheaves immediately after cutting, and put into shocks to dry, and then hauled into the barn, or put on stacks, or threshed by the machine on the field. As a rule, barley, oats and peas are left to lie in the swath for six or eight days, then bound, put in shock and hauled home. Twenty-four hours after mowing, clover is usually put in cocks, in which it dries rapidly and is tolerably well secured from spoiling; it is then hauled into the stables without any loss of foliage by further handling. In recent times, however, it is usual to haul it in, in a half dried state, put it upon lofts or into barns and salt is strewn upon the different layers of it, it is then compactly trodden down by horses or oxen. A different curing of grass or clover is called *brown* hay, in contradistinction from the ordinary, which is called *green hay*. The *brown* hay is prepared as follows: The clover is cut in fair weather, and the swaths are immediately spread, the next day, as soon as the dew is evaporated, it is turned; on the third day, as soon as the dew is gone, it is put in cocks and hauled in. The leaves and stalk are fully withered and are in their toughest state. When brought into the barn it is unloaded in the repository in layers of six to ten feet deep, and on every area of ten feet square a man is placed to tramp it down, and it is especially well tramped at the walls. When it is tramped down as compactly as it conveniently can be, then a layer of bright new straw, one to two feet thick, is spread over, and then another layer of clover, and so on—in some cases almost equal portions of straw are mixed with the clover and the whole tramped down together; it is claimed that the straw assumes the taste and color of the hay, and is voraciously eaten by the cattle. It requires from six to eight weeks for the completion of "heating" or fermentation, but during all this time, as well as afterwards, it is left undisturbed. From well authenticated cases in feeding, it is stated that brown hay produced eleven and one-fifth thalers per morgen more in milk than the green hay. All attempts to make brown hay of lupines have failed. Potatoes are harvested with the hoe;

they are seldom plowed out, or taken up with a fork; recently, however, the English potato digger has been introduced and is much used by small farmers. The potatoes are kept in holes or in cellars.

PROVINCE OF SAXONY.

Reapers and mowers are more used here than in Brandenburg—the use of the sickle in this province is almost obsolete. Wheat and rye are cut before being quite ripe and laid in bundles to dry and ripen. In some places the grain is bound in sheaves as fast as it is cut, and then put in shocks consisting of nine sheaves, the heads up, and the head of the tenth sheaf spread out and over the nine, somewhat like an umbrella—this tenth sheaf is put on with the head down and serves, in a degree, to protect the nine from rain. **Rape** is generally cut at night or with the dew on it to prevent it shedding; it is, as a rule, threshed on the field. In Mansfeld, after clover is cut it is left lying three or four days in the swath, then turned and left one or two days more to dry, it is then put in cocks and hauled to the barn, where it is packed away and about three pecks of salt mingled with every two-horse load—it is claimed that this kind of clover hay will keep several years and is keenly relished by the animals. In Sonderhausen considerable Indian corn—the "Virginia Horse Tooth"—was extensively grown, and with great success as a forage plant, but is now abandoned and clover substituted for it. It is claimed that the corn was very exhausting, and required more manure than the clover.

WHEAT.

Posen.—This province is the most famous for producing good quality of winter wheat of any in the kingdom of Prussia. Where the soil is wet the "lands" consist of eight furrows, on drier soil the lands are a rod in width, but on underdrained and well cultivated lands the wheat is sown over the entire field and it is not divided into *lands*. A heavy clay soil is plowed *four* times before it is seeded; a lighter soil is plowed three times, and after the wheat is up is cultivated twice or thrice with a horse-hoe or hook.

Province of Saxony.—In this province wheat does well after manured peas—even on soils of the sixth and seventh class, a thirteen fold crop is regarded as an average—that is thirteen bushels of crop for every bushel of seed sown. In Mansfeld a crop was drilled in, late in the season, and afterwards received a top dressing of guano and bone dust, and produced thirty-three bushels per *morgen* (five-eighths of an acre,) whilst the earlier sown wheat, with the same treatment, did not near so well. In Halberstadt, about ten metzen* of wheat mixed with seven metzen of rye, are sown per morgen. After the crop is harvested and threshed they use a

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*The *metzen* is about the *one-tenth* of a bushel.

peculiar machine to separate the grains. It is claimed that by growing the crop thus mixed that both the wheat and rye yield better and weigh heavier than if grown separate.

In Schildau a field which, for years, had been cultivated in one kind of crop, but in 1862 half of it was sown in oats and the other half in lupines, then after this oats and lupine crop the entire field was sown in rye—the crop on the unmanured lupine stubble was better in the proportion of five to two than that sown on the oat stubble, manured with guano. The yield of oats in Pommerania is forty to forty-five bushels per morgen. In Saxony field peas yield twenty-five to thirty bushels per morgen.

About two bushels of seed are used, they are drilled about nine inches apart and cultivated by hand.

Textile Plants.—From eight to twenty million heads of teasles (DIPSACUS fullonum,) are grown in Silesia, but the entire teasle product of the province is not sufficient to supply the home demand of the manufactories of fine broad-cloth. Hemp is very little grown anywhere in Prussia. Flax is grown in Posen and Pommerania, for the Silesian market. That grown in the Rhenish provinces is consumed in Westphalia. Rape and poppy were formerly extensively grown for oil, but the introduction of petroleum from America, has caused the producers to hesitate in devoting much land to these crops.

POTATOES.

I have spoken of potatoes elsewhere, and will here only refer to a new variety called the "green" or *Heiligenstadt* potato, the stalks of which remain bright and green until late in October or early in November—it is very productive and hardy, producing two hundred and fifty to three hundred bushels per morgen. One man in Neuhaldersleben, province of Saxony, had one hundred and fifty morgen in these potatoes, and the crop averaged two hundred and forty bushels per morgen, or three hundred and eighty-four bushels per *acre*—a single hill contained one hundred and thirty potatoes, on the same and adjoining estates the "red union" potato yielded fifty-eight bushels per morgen; the "fir cone," strongly resembling our "lady finger," yielded eighty-four bushels only per morgen. It requires to be planted wide apart, in hills (24 by 30 inches apart,) and is hard to harvest, because the tubers adhere strongly to the vines and to the soil; on the other hand it seems to flourish in heavy, wet clays where no other potato would grow. Potatoes are extensively grown for distilling, and many farmers exchange their crop of potatoes for oil and rape cake, bran, &c., at distilleries. As to the value of the *green* potato for table use, accounts are very contradictory. It is not "fashionable" to bring large potatoes on the table in Germany—the largest I saw on the table, in the entire course of my travels on the continent, did not exceed the size of our common black walnut, whilst most of them were not larger than fair-sized shellbark hickory-nuts. It is held that the larger potatoes are too coarse and not fit for human food. But for my *taste*, although I am not an epicure, we have here in Ohio potatoes weighing from half a pound to a pound and a half that are just as well flavored as any of the German "nut" varieties. Seed potatoes are generally put in a cellar and plaster or lime, or both, strewn over them.

SUGAR BEETS.

In Mansfeld the sugar beet crop averages one hundred and twenty cwt. per morgen, in Oscherslehen two hundred cwt. A new kind yielded eight hundred cwt. per morgen in the district of Sondershausen. I will repeat here a portion of a letter I wrote home from Magdeburg.

MAGDEBURG, June, 1865.

Bright and early yesterday morning we left Leipzig for this place, (Magdeburg) in the province of Saxony. This is a very old town; there is a statue in the old market place of Otto the Great, put up about the year 980, or nearly nine hundred years ago. The Dome, a church, 350 feet long and 330 feet to the top of the steeple, was built in 1208. The city is *bebastioned, beparapetted* and *befortified* in the strongest possible manner, (for old fashioned times.) Wallenstein the great General of the seventeenth century, besieged this place for seven months in 1629, when it yielded. I pay very little attention to these local histories, for half of them are *gammon*, but I have *history* for what I noted above.

About one hundred years ago the first discovery of beet sugar was made, either in or near this place, and the manufacture of beet sugar in its various departments is the chief industrial pursuit. All the way from Halle here, on both sides of the railway were wide expanses of territory in sugar beets, and a perfect army of workmen cultivating them for the Magdeburg factories. Yesterday afternoon we drove out to a sugar beet factory, and were politely shown all through the establishment, and every part of the process of obtaining the sugar from the beet was fully explained.

The establishment with all the machinery cost a little over 250,000 thalers, or about $180,000. During the manufacturing season it turns out 20,000 pounds of refined sugar daily. The manufacturing season commences in October, and lasts about six months. At present they are engaged in refining and manufacturing from refuse material. The best of double refined loaf sugar sells at the factory for 14 thalers 15 silver groshens a cwt., or about 9 4-5 cents a pound. The beets are sown in drills 8 or 10 inches apart, and just now the field laborers are engaged in pulling out the weak and superfluous plants, and transplanting to where they failed to come up or grow. In the manufacture of sugar the beets weighing from one to three pounds are considered the best. They yield the most sugar according or in proportion to their weight. Large beets, like those grown by Prof. Mot at Newark, weighing twelve to fifteen pounds, are not considered as being worth much. From eighty to a hundred and twenty tons of beets are harvested per acre. Many farmers grow an acre or two of beets and exchange them for sugar and beet pumice. During the fall and winter the grounds around the factory are crowded with farmers getting pumice weighed out to them to haul home for cattle food. Then, too, the proprietors of the establishment purchase two year old cattle in the fall, and feed them till spring, and ship them to Hamburg for the British or London markets. There are quite a number of these factories in this vicinity, and notwithstanding the government taxes these establishments very heavily, yet they make money, and the farmers regard the beet crop as a profitable one.

The Science of Sugar Making.—I inquired of the proprietor if the manufacture of sugar from the beets had attained that degree of certainty so that a competent person could make sugar *every time*, and with as much certainty of success as the tanner could succeed in tanning a hide. "Yes," he said, "we make sugar from beets with the same kind of certainty that a tanner tans hides, or a distiller makes whisky, but it is a trade every single operation of which must be learned with the same care and thoroughness that any other chemical operation requires. If you wish to establish the business in America, your best way will be to send some of your most intelligent young men (and they should be chemists) over here, and let them work a year in our establishment, and then they will know all about the manufacture. This will be your cheapest and quickest way. You *cannot* learn it from books; it *must* be learned by actual physical handling and manipulating. We Germans have spent millions of money before we succeeded. We have no secrets in the manufacture at all,—all the secrets there are, is to have a thorough understanding of the business, and to know enough of chemistry in special cases to apply the proper agent. That is all there is about it. Whenever any one talks to you about a secret in the manufacture of sugar of any kind, you may safely set him down as an imposter—that is, one who does not fully and thoroughly understand the business himself. For a long time we were pestered and imposed upon with these secrets, until chemists and practical workmen were found who *mastered* all the difficulties, and since then we have not been troubled with secrets in the business of manufacture."

MANUFACTURE OF BEET SUGAR.

The statistics of beet sugar for 1864 were not yet published when I was in Prussia, and the latest official returns I could obtain were those of 1863. They showed that there were in

	Establishments.	Raw beets in cwts.	Sugar produced in cwts.
Prussia	216	31,783,088	3,178,308
Bavaria	6	399,470	....
Saxony	1	73,170	....
Hanover	1	125,955	....
Wurtemburg	6	1,014,479	....
Baden	1	1,036,945	....
Thuringia	2	221,068	....
Brunswick	14	2,065,084	....
Total in Zoll Verein	274	36,719,259	....
Austria	130	20,856,597	1,459,962
France	362	....	3,402,698
Russia	353	14,500,000	2,675,950

When it is remembered that each one of these establishments cost from $150,000 to $300,000, and employs from fifty to a hundred hands, it will readily be conceded that it has become an important branch of industry. In the province of Saxony alone there are 121 of these establishments, several of which I visited. From what I know of the formation of the soil in this province, I am fully convinced that we can grow just as good beets in Ohio as they do there, and I see no reason why the manufacture of sugar from beets could not be made just as successful and profitable here as it is there.

It is objected that labor is entirely too expensive here to conduct such an establishment profitably, or to compete successfully with sorgho, maple, and Louisiana cane sugar. I am satisfied that *relatively*, all things considered, neither skilled nor unskilled labor is more expensive in ordinary times here than in Europe. The laboring men and women receive so many substantial gratuities from employers, in accordance with the customs of society in Europe, that notwithstanding the nominal wages of a laborer is a mere pittance, yet when it is considered that the employer must furnish the laborer with an abode, means of subsistence, and employment for the entire year, it will be conceded by all thinking persons that the American free system of employment has many advantages, both for employee and employed, over the European system. Here in America the employer pays the full value of the service rendered; the employed has the fruits of his labor at command, is at liberty to purchase his necessities in the lowest market, and to sell his labor in the highest market—can labor a day, week, month, or year for the same employer, and change at will. On the other hand, the employer here is not obliged to maintain persons when he has no employment for them, as is the case in Europe; hence results this intense application to labor in the United States, and the unexampled introduction of machinery in every industrial department.

In connection with these beet sugar manufactories are often to be found breweries and distilleries. In 1863 there were in Prussia

	In cities.	On farms.	Bushels of grain distilled.	Bushels of potatoes distilled.
Distilleries	1,126	4,895	6,323,499	41,125,366
Breweries	3,654	3,705[*]	....	....
"	34	2,682[†]	....	....
"	.....	12,686[‡]	....	....

Almost all the large farms have either a distillery or brewery, or some such technologic branch of industry. The sugar beet factories fatten cattle mainly, with the pumice and other offal, whilst the breweries and distilleries feed swine.

FORAGE PLANTS.

Throughout all Germany I saw very little of what is here in Ohio called pasture lands, and upon inquiry was told that it not only required less land to keep in good condition and fatten a given number of cattle, if they were green soiled, than if they roamed at will over the pastures, but at the same time the culture of forage plants kept the land cleaner than if in pasture, whilst the cattle did not distribute the manure as equally as it was done by hand. I was told that the plants chiefly grown for forage are lucernes, rape, Indian corn, seradella, millett, vetches, oats, barley and rye. Most of the farmers confine themselves to the culture of red clover, lucernes and vetches, with rye, barley and oats; those who feel that they can afford it sow timothy for pasture. In some provinces esparsette and seradella are extensively cultivated. Then, too, the frequent failure of the potato crop caused the farmers to rely more on forage plants than root crops for winter food for stock. Turnips do not appear to be in great favor with the Prussian farmers, and when they do grow root crops for cattle, they grow beets—chiefly sugar beets—and carrots, together with potatoes. In many places I found that in the spring time a mixture of clover, lucerne and esparsette was drilled between the drills of winter wheat or rye. In the district of Sondershausen (province of Saxony) I found from one-fifth to one-fourth of the entire area in clover. There the lucerne is kept five to six years, esparsette three, and clover two years in the same field. When the clover is intended to be pastured the second year, from one-half to three-fourths of a bushel of esparsette and pimpernel are sown per *morgen*. In Ranis

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[*] All these pay a license and income tax.

[†] These pay a license only, and are in connection with other manufactures.

Private—brew for family use only.

Red clover	is cut	2 to 3	times a year, and yields	60	cwts. per morgen.
Esparsette	"	1 to 2	"	40	"
Lucerne	"	3 to 3½	"	60	"

I have mentioned lupines elsewhere, but will state here that in the province of Saxony it is highly valued as a forage plant on sandy soils, as well as for green manure, it exerting a powerful effect upon the ensuing crop. The lupines, green as well as dry, are the principal food for sheep.

Tobacco for domestic consumption is grown on almost every farm. The product is from eight to fourteen cwts. per morgen, or from thirteen to twenty-two cwt. per acre; but the manufacturers complain of the quality —they say it is entirely too oily.

FRUITS.

Fruits are very little grown in Germany. I found no apples to compare with ours in Ohio, and in the markets they are very expensive. I found no peach trees anywhere, although some are grown; cherries and pears do well, and they have most excellent varieties of these but very limited in quantities. For strawberries they depend mainly on the meadows, and believed the reports of the strawberries consumed and sold in Cincinnati, Philadelphia and New York as being *canards* of the most extensive proportions. A professor of botany, and formerly the king's gardener at Potsdam, assured me that if these statements were correct, then there were more strawberries sold in Cincinnati annually than were grown in the entire Germanic Confederacy! I found plenty of currants of many varieties, gooseberries of many varieties, but no raspberries nor blackberries. Grapes, of course, are cultivated to a considerable extent in the Rhenish provinces. The leading varieties grown are the Riesling, Traminer, Gut Edel, Franke, Dwarf Traminer, and Red Burgundy; but as I shall have more to say about grapes in another place, I will reserve the subject matter for that place.

FORESTS.

Except in the mountainous regions, no forest trees are found except those planted and reared by hand. Where forests are thus grown, the great variety found in American native forests is wanting. The trees grown are either such as are very rapid growers, or else such as produce wood for a specific purpose. The great proportion of these cultivated forest trees are *conifera*, or the pine family. In the Westphalian coal region oak timber is much used, and oak forests are planted. Fir trees and oak are used extensively for charcoal. Since the introduction of the lupine, the forests in many regions are disappearing rapidly, because the lupine will flourish where scarcely any other farm crop will grow at all, and the lands formerly kept in forests are now being devoted to lupines. Formerly the peasants and small farmers were allowed to collect the leaves in autumn for manure, but it was discovered that the removal of the leaves proved to be injurious to the forests, and now the removal of the fallen leaves is strictly forbidden. The Prussian government is endeavoring to preserve, as near as may be, about one-fourth of the entire area in forests, as being the minimum quantity required for practical purposes. The subject of forestry in all its details is a very important feature in the productive economy in Germany, and consequently much attention is paid to it. A forest there is kept as clean and in as good order as any park in the United States.

LIVE STOCK.

CARE AND BREEDING OF ANIMALS.

In this, as in every thing else, almost every province in the kingdom differs; and these differences are founded on climate, soil, accessibility to markets, and the purposes of the animals. It is therefore impossible to give a general view of the matter that would convey any information at all. I shall therefore pursue the same plan as with relation to the crops, by presenting the leading feature of each province, so far as they come under my observation.

PROVINCE OF PRUSSIA.

The royal stud at Gumbinnen is situated in this province, and its leading feature is horse breeding. But since the exhibition at Hamburg, cattle and sheep breeding has received a new impulse, and many excellent breeding animals, of both the cattle and sheep kind, have been introduced. But cattle breeding cannot be much improved until a larger area is devoted to forage plants.

An opinion has taken deep root in this province, especially the western portion, that the National Stud is productive of more injury than benefit, because it deters the breeders from producing horses adapted to their local conditions, and from this cause many mares remain without foals, whilst those produced do not meet the wants of the breeders—hence, we find more cows and oxen used on farms for draught purposes than horses.

POMMERANIA.

The State has several stations for stallions from the Royal Stud in this province, and certificates are issued to certain owners of mares, which entitled the mares to be served free of charge, and then premiums are awarded on mares and colts; all of these things have acted as a powerful stimulus to horse-breeding. At the same time the style of horses bred is not that which is most desired by farmers. The supply of draught horses is by no means equal to the demand. In order to meet the demands of farmers, the Government has stationed several PERCHERON Stallions, which have been bred to the best mares, but the result has not been satisfactory in the vicinity of Stettin. The Stettin Agricultural Association insist that the only permanent improvement which can be made in that neighborhood is by the introduction of powerful thoroughbred, and half-blood horses thoroughly tested on the race course. On the other hand, a very powerful breed of horses is being formed by the introduction of Percherons in the vicinity of Stolp. In Koeslin, stallions imported from Ardennes has produced the same result.

In order to improve in the art of horse-shoeing, schools have been established in the Pommeranian cavalry and artillery regiments since 1861. In 1864, these schools graduated some fifty adepts, who have been assigned as teachers in various localities. The price of a good farm horse is from 240 to 260 thalers (from $160 to $175), and in order to reduce the price and supply the demand a Suffolk punch was purchased at the Battersea exhibition in 1862. His progeny promises to be satisfactory.

CATTLE.

The imports of thoroughbred cattle into this province are rapidly increasing, but it is on the large estates only where thoroughbred and "constant" (*i. e.*, not cross-bred animals) are kept pure. The Holland ws are very popular here as milkers, but as they require generous feeding, it is only on larger estates where they are kept. The East Friesland and Oldenburg cows, formerly so popular, are being in favor and are found only in the hands of smaller farmers. These Frieslanders and Oldenburgers are really of the same race as the Hollanders and originally came from the same place; but, no doubt, thorough acclimatization, and perhaps a defective system of breeding and keeping have impaired the qualities which the Hollanders now present in full development. The Shorthorns are popular as beef cattle. There are not as many calves of any breed reared as in former times, because it is too expensive; where the Holland cattle are in favor, calves are bought at the age of about six months and raised. With the smaller farmers, cattle breeding receives very little attention. For some years past, very few work oxen have been reared; the owners of manors prefer to import them from Voightland, Bavaria, the Eger Valley, &c., the cost of transportation and the duties, &c., are amply repaid by the greater usefulness and endurance of these races over others.

SHEEP.

As Stettin, a sea-port town is in Pommerania, and as several railways from this province lead to Berlin the capital of "all" Prussia, the tendency in sheep-breeding is to produce as large a carcass for mutton as possible—hence, formerly famous Negretti flocks are being crossed with Southdown, Leicester, Cotswold, Rambouillets and Mauchamp bucks. Of course, this proceeding is *not universal* in Pommerania; some of the owners of fine Negretti herds (combing wool sheep in the *German* sense) are endeavoring to improve the carcass, not so much for mutton as for constitution, and a larger wool area. The former tendency to produce a very fine wool is abandoned, and the flock owners are contenting themselves with quantity instead of quality. In some Negretti flocks the fleece from 100 head amounted to 560 pounds of wool.

Many flock owners object to the practice which necessity and the high price of land have thrust upon them of feeding the flocks the year round in the fold, but an experience of three years on the manor of Gross Pobloth, near Korlin, demonstrate it to be the most profitable. Eight hundred old sheep, and four hundred lambs were housed the year round, whilst four hundred old sheep were kept on the pastures; those housed were fed on red clover and vetches, and a very small area comparatively sufficed for keeping them in much better condition than those grazing on a larger area. The introduction of lupines and seradella has induced a much more extensive breadth of land devoted to sheep and a consequent large increase in quantity of sheep than before.

RHENISH PROVINCES.

Almost all the lands in these provinces are arable, and very little of it natural pastures; therefore, not much attention has been paid to horse-breeding other than heavy strains for farm purposes. The Government has several stations for stallions here; but the Suffolk, Clydesdale, Percheron and Ardennes breeds are the most patronized. More horses are bred here than formerly on account of the high prices that horses bring, at the same time a lack of pasturage seems to be a great drawback to the perfect success of horse-breeding.

BRANDENBURG.

Horse-breeding is slowly recovering from a serious drawback made some years since in consequence of breeding thoroughbred stallions to the common country mares. Some of the farmers refused to send mares to these thoroughbred stallions, arguing that these horses were entirely unsuited for either draft or the plow, and reserved, therefore, a small stock of good country mares of Mecklenburg descent, and by breeding them to the heavy Trakehner, Mecklenburg, and Hannoverian stallions, have obtained suitable farm and wagon horses. Many heavy Hannoverian colts are annually imported—these are found much better adapted for agricultural purposes than the long legged thoroughbred.

PROVINCE OF SAXONY.

In the Province of Saxony horse-breeding is one of the leading features. the offspring of the stallions from the Royal Stud almost ruined the horse stock for agricultural purposes, and cows and oxen were largely imported as substitutes for the very light horses; but the introduction of Danish mares, Percheron and Ardennes stallions, are now producing a fine lot of farm horses. Suffolk and Clydesdale stallions are found in some districts. At first the Percherons were not liked; a gentleman from Weissefels informed me that in his neighborhood a Percheron had been kept for several seasons, but the people preferred another strain; but since the removal of that stallion, it was found that he had got the best colts—especially from the Danish mares, or mares having Danish blood—and that he was a surer foal getter than any stallion that ever had been kept there; that he had got from 80 to 100 colts annually.

The farmers in some districts complain that the stallions are bred too young (three to four years), and on the other hand, the want of proper agricultural force compels them to work the colts too young.

CATTLE.

On all the estates where cattle breeding or cattle feeding is carried on to any considerable extent, one finds the stables very cleanly kept; not unfrequently plastered and whitewashed, and if the hay and straw are kept in a mow, then the floor of the mow over the cattle is a tight one, and not unfrequently plastered and whitewashed on the underside or over the cattle, and the hay and straw are brought down in allotted quantities and the hay given to the animal in a rack so constructed that little, if any, may be wasted. The floor on which the cattle stand, whether of clay, boards or brick, is always a few inches higher under the forepart of the animal than under the hindpart, so that all fluids may flow out of the stall. Just in the rear of the animal is a gutter or trough running the whole length of that part of the stable in which the cattle are; the object of this gutter is to collect the urine, which flows through the gutter into a reservoir, where it collects for months, and then is used either for liquid manure, or to be absorbed by some porous material and then hauled out for manure. The Germans have made innumerable experiments in cattle feeding in order to ascertain which is the cheapest food to produce a given amount of meat, or milk, as well as to determine the relative value of hay; or in fact to make hay the standard, and to ascertain the relative value of other kinds of food as compared with hay.

In 1863 an experiment was made of feeding calves at the Agricultural College at Poppelsdorf; the details of which were furnished me in a copy of "*Annalen der Landwirthschaft*, Nos. 27 and 29, June and July 1864," and which would fill 40 or 50 pages of this report. I will content myself by presenting it in as condensed a form as possible. Four calves were selected of the thoroughbred large Hollanders; these calves when dropped weighed as follows:

	Weight when dropped.	Weight of dam.	Proportion of weight of calf when dropped to that of the dam.
No. 1, Holde........	80 pounds.	980 pounds.	1 to 12.2
No. 3, Aster........	92 "	990 "	1 to 10.7
No. 4, Monitor......	103 "	1060 "	1 to 10.3
No. 5, Princess......	88 "	1070 "	1 to 12.1
Average.....	90¾ "	1025 "	1 to 11.3

But another Bull calf No. 2, Hercules, of the same race of cattle was obtained from a neighboring estate. The averages of the five calves are given in the annexed table:

Age of calf in weeks.	No. of days of each experiment.	*Quarts* of sweet milk.	Oatmeal *in pounds.*	Oil cake *in ounces.*	Oat chop; *pounds.*	Chaff, *pounds.*	Bran, *pounds.*	Hay, *pounds.*	Weight of the calf at the comencement of the experiment.	Weight of the calf at the end of the experiment.	Increase during the period.	Increase per day.	Cost of producing one pound of flesh.
													cents.
I to VI....................	48	480	..	...	...	...	...	7½	93	177	84 4-5	1.74	14⅜
VII to IX.	23	316	11	35	...	...	...	21	177	231	53 1-5	2.31	15⅝
X to XI....................	15	150	19	42	...	...	...	38	231	249	18 1-5	1.18	24½
XII to XIV.................	22		49	45	11¼	11	11¼	113	249	278	29 2-5	1.30	14¾
XV to XVI..................	14	....	..	...	27¾	37	27¾	125½	278	300	21 2-5	1.44	7½
Total..............	122	1037	79	122	39	48	39	305	1028	1235	207	7.97	76¾
Average.............	....	....	..	...	...	..	...	....	......	....	207	1.66	15⅜

During the first six weeks the calves were fed the milk as it came from the cow—during the 7th, 8th and 9th weeks respectively ¼, ½ and ¾ pound of oatmeal were added to the milk, together with 1, 1½ and 2 ounces of oil cake. In the 5th week tender sweet hay was laid before them, and from the 10th week on the quantity of milk was daily reduced, so that by the 14th week the calves were completely weaned. The oatmeal and oil cake were increased until the 12th week, at which time a "chop feed" consisting of a mixture of wheat chaff, bran, and chopped oats moistened, was fed to them three times a day, and the oatmeal and oil cake gradually reduced in the drink until at the end of the 14th week they were entirely stopped. When the calves were 12 weeks old, they were every afternoon, after having eaten the mid-day ration, turned out into a small grass inclosure; this continued until the end of October, except in very unfavorable weather, but their evening ration was always served in the stable. Putting them on grass was simply to accustom them to green food, to become inured to fresh air. During the first four weeks they were fed 20 pounds of fresh milk per day for every 100 pounds of live weight; now this milk contained 0.80 pounds of protein, 0.60 pounds of fat, and 2.40 pounds dry substances; during the 5th and 6th weeks, ½ pound of hay per day was added; therefore, for every 100 pounds of live weight there was 0.83 pounds of protein, 0.61 pounds of fat, and 2.70 pounds dry substance fed to each of the calves.

The 8th week may be regarded as an average of the 7th, 8th and 9th weeks. During this period the calves received according to their live weight an average of 12 to 16 quarts of milk—say an actual average of 14 quarts, together with 1½ ounces oil cake and ¾ pound hay. The object of oil cake is to supply the normal disposition to take on fat in proportion to the live weight, which could not be accomplished by the oatmeal alone. The ration of the 8th week shows that 1.49 pounds protein, 1.09 pounds fat, and 5.14 pounds dry substances has been consumed for every 211 pounds live weight of animal.

The 11th week is the index of the next period; the daily ration consisted of 8 quarts sweet milk, 1½ pounds oatmeal, 3 ounces oil cake and 3 pounds hay, or 1.27 pounds protein, 0.84 pounds fat, and 6.28 pounds dry substance for every 249 pounds live weight.

In the 13th week the ration was materially changed, by the introduction of chopped feed. Four quarts sweet milk, 2½ pounds oatmeal, 2 ounces oil cake in drink, ½ pound wheat chaff, ½ pound bran, and ½ pound chopped oats as chop feed, and 5 pounds of hay constituted the ration. This contained 1.30 pounds of protein, 0.67 pounds of fat, and 8.89 pounds of dry substance for every 270 pounds of live weight. At the close of the experiment, in the 16th week, the calves received the same equivalents that mature animals received, but the calves received it in *two* pounds of bran, 2 pounds mashed or chopped oats, and 9 pounds of hay; this is equal to 1.53 pounds protein, 0.48 pounds fat, and 13.72 pounds dry substance to an average live weight of 300 pounds. Now during the entire period of the experiments we find the following proportions in the food for every 100 pounds of live weight:

	Protein.	Fat.	Dry substance.
In the first four weeks..........	0.80 pounds.	0.60 pounds.	2.4
" " 5th week................	0.83 "	0.61 "	2.7
" " 8th "	0.70 "	0.51 "	2.5
" " 11th "	0.51 "	0.34 "	2.6
" " 13th "	0.48 "	0.27 "	3.2
" " 16th "	0.51 "	0.16 "	4.5

The prices of the food were the ordinary market prices, viz: milk 2½ cents per quart; oat meal $1.66 per hundred weight, oil cake 5 cents per pound, chopped oats $1.25 per cwt., wheat chaff 40 cents per cwt., wheat bran $1.25 per cwt., and 62½ cents per cwt. for hay.

The experimenter (Mr. A. Kramer) in the course of the article comes to the conclusion that he could purchase four months old calves from small farmers for much less money than he could raise them; not that small farmers do not know as well as he does what it costs to raise a calf, but that the future feeding and care necessary to produce a good animal are such as are beyond the means of the small farmer, and necessity compels him to sell.

Dr. Grouven, at Salzmunde, near Halle in Saxony, has published a work of nearly 600 large 8vo pages on "Physiological chemical feeding, experiments on the nutritive value and properties of general non-nitrogenous nutritive materials, in 1861 and 1862, and chemical investigations on the respiration of various animals in 1863." I had a copy of this work before I visited Europe, yet had no idea of the details and precision with which the experiments were conducted. It would occupy entirely too much space to attempt a description here.

POSEN.

Cattle-breeding in this province is far from a leading feature; in fact, it is scarcely of secondary importance to the farmers, a majority of whom regard cattle as a "necessary evil." Their system of breeding is in-and-in, and has been conducted so long and persistently that the cattle have become mere "runts." This is the statement made to me by an excellent farmer, and I give it for what it is worth, without committing myself as to whether in-and-in breeding will produce such results *per se;* I am inclined to think that the production of "runts" is as much due to their system of feeding and keeping, as it is to breeding. Working a milch cow all day at the plow or in the wagon, I do not think is calculated to improve her much as a breeder, and weaning the calves just as soon as they are able to live on anything else besides milk, is not, in my opinion, calculated to develop or produce a superior race. On some of the large manors, cattle are more properly cared for, fed and bred more rationally and consequently are better.

There is a law in Prussia known as körordnung, which compels the owners of large estates to keep stallions, bulls, rams, and boars for the use of the smaller farmers, at mere nominal rates for service. Thus in the province of Posen a small farmer is charged the sum of five silver groschen (12½ cents) for the service of a bull for each cow. By this means in some districts, especially in the neighborhood of Granstadt, many of the small farmers have really good cattle. The imported animals on the manors consist chiefly of Holland, Oldenburg, Schwitz and Allgau races, but recently Short-horns have been added. The average quantity of milk given by the farmers' ordinary cow is 1,500 quarts per head; but a yield of 3,000 quarts is not at all uncommon. The price of milk in towns is one silver groschen (2½ cents) per quart; in the country it ranges from two-thirds to three-fourths of this amount; that is, eight to nine pfennings per quart, twelve pfennings being one silver groschen. The weight of fat cattle ranges from 1,000 to 1,600 pounds. Sometimes, but not frequently, they weigh 2,000 pounds. The best quality of beef is worth eight thalers ($6.00) per hundred pounds; medium, six to seven thalers.

WESTPHALIA.

In Westphalia the Holland race is very popular, and extensive importations are made of this race. From forty to a hundred cows of this race are frequently found on manors. Forage plants are not yet extensively enough grown to insure successful cattle breeding and keeping.

BRANDENBURG AND SAXONY.

In these provinces much has been done in the improvement of cattle by introducing thoroughbred foreign breeds, such as Shorthorn, Allgauer, Holland, Oldenburg, Breitenburg, Franconians, &c., &c. The Berlin market is supplied from these provinces, and fat cattle are shipped by cars and on the Elbe from here to Hamburg for the English markets. In these two provinces are many breweries, distilleries and sugar beet factories, and the fattening of cattle is an important feature of the agricultural industry. It is held by those who have many years' experience, that the cross-bred animals mature earlier, fatten more readily, and produce more flesh from a given amount of food, than those do that are not cross-bred. Thus, for market purposes the cross between a Shorthorn and native is much more valuable than the best native, or a cross between a Hollander and native is better than either a pure native or a pure Hollander, and so on of the other breeds. In Saxony the most profitable animals for marketing are a cross between a Shorthorn and "Hartz" cows. These mature earlier than the thoroughbred Shorthorns, and yield more meat from a given quantity of food than any others.

If the improvement of domestic animals were left *entirely* to the small farmers, it is not at all probable that any improvement whatever would be made. But everywhere there are agricultural societies of various grades, as for example, township societies, county societies, district societies, and State or provincial societies. The managers of these societies are wealthy gentlemen and extensive landholders, and so far as I had an opportunity of becoming acquainted with them, they proved to be very intelligent gentlemen, and always very progressive. I never found a single "*conservative*" or "*old fogy*" among them, and to the enterprise and energy of these associations much of the improvement in agriculture is due. These societies purchase breeding animals for the use of the members of the society and the "körordnung," that is, small farmers are entitled to the use of these animals for a trifling sum; and not unfrequently the societies sell some very excellent heifer calves to small farmers, with the understanding that they are to be kept for breeding. This is done to induce the farmers to fatten their old and otherwise unfit cows for breeding. In the Halberstadt district there are annually a large number of calves, heifers in calf and cows in calf, imported from Holland. These importers find it profitable to import seven to eight month old calves at thirty-three thalers apiece. In Worbis they select good Hartz bulls and breed them to the native cows, and in this way obtain very excellent draught *cows*, which have more fattening qualities than the native cows. In several districts where the Holland bulls have been bred to the Hartz cows the result has been more satisfactory than where Shorthorn bulls have been used. Fattening cattle is nowhere carried on as a business except where distilleries, breweries, or beet sugar factories are in operation, and there only aged cows and work oxen are fatted. I have nowhere found that cattle are reared for beef only; everywhere they are reared for labor and milk, and when too old for either of these purposes, they are then fattened. Where factory offal cannot be obtained for cattle food, they feed thirty to seventy-five pounds per day per head of beets or turnips, mixed with five pounds of cut straw, four to five pounds of clover hay, one pound of oil-cake and one pound of bran, put in their drink in the course of the day. They estimate a *ration* of fifty pounds of beets or turnips at three silver groschens, five pounds of hay at one and a half silver groschens, ten pounds of straw at one silver groshen, one pound of oil-cake and one pound of bran or shorts at thirteen pfennings, and the care and tending at five pfennings, making in the aggregate seven silver groschens, or seventeen and a half cents, and the average yield of milk, five and a half quarts, at four and one-twelfth silver groschens; the *keep* of the cow then costs, net, two and five-twelfths silver groschens or six cents per day, and it is estimated that the manure and labor of the cow will more than cover this amount. From a report of a large dairy made to the Halberstadt Agricultural Association, it appears that the net annual profit of each cow was ten thalers, eleven and a half silver groschen—$7.78¾.

SHEEP.

Sheep husbandry is an especial and separate branch of agriculture in almost all the German States, at the same time all the farmers who have land enough keep more or less sheep without making it a specialty. The note made here in relation to sheep, has reference to those who do not make sheep husbandry a specialty.

WEST PRUSSIA.

Where the local conditions are unfavorable for cattle breeding more attention is paid to sheep breeding. Where sheep are bred for wool, the great object seems to be to increase the weight of fleece, without much regard to quality, and as a general thing a long-wooled Merino tribe is most popular. The wool is about the same grade as our Vermont Merinos, and is there termed combing wool (*kamm wolle*). Southdowns, Cotswolds, East Friesian *milch* sheep, have been introduced for mutton. In the valley of Vistula an experiment was made in fattening the Vagga sheep. The food used was beets, potatoes, clover, hay, oats, and rape cake, in the proportions of nitrogenous to non-nitrogenous : nutritive substances to fatty substances, as $1 : 5_2 : 0_3$. From this it appeared that it cost 5.44 silver groschen, or 13.6 cents, to produce one pound of mutton exclusive of the wool.

Silesia.—In Silesia the number of sheep does not yet equal that of 1849, when the number exceeded 3,000,000. The last enumeration was in 1861 (will be again enumerated this summer, 1865); they numbered 2,611,743. As a rule, quantity of fleece is the great object of breeding; at the same time they wish to preserve the quality; but will sacrifice quality to obtain quantity, rather than *vice versa.* Mutton sheep have been introduced, but, except in the immediate vicinity of large towns or cities, they do not meet with much favor.

Saxony.—Since the introduction and well-established success of lupines in many portions of this province, a new impetus has been given to sheep husbandry. In these places the common country sheep have been bred by the farmers, and are now crossed with merinos—the Negretti tribe or family being the most popular. In some of the districts where farmers bred fine wooled sheep, we find that whilst they had good Electorals, they bred them to Negrettis in order to obtain weight of fleece; in other districts, however, they exclude the Negrettis entirely and breed the Electorals upon the common sheep. Southdowns, Leicesters and Cotswolds have of late been imported as progenitors of a mutton race. Upon the whole, sheep in this province, even in the hands of smaller farmers, are bred for wool rather than mutton. But the breeding of mutton sheep is slowly advancing, and in such a manner as to convert the merino wool-bearing sheep at the same time into a mutton sheep. Many well-written essays and discussions are in print upon this point, some of the ablest physiologists and breeders in Germany enthusiastically taking one or the other side of the question. A learned and very intelligent gentlemen told me that it was a great piece of folly to attempt to make a good mutton sheep out of a fine wooled sheep, and preserve the quality of wool. "Wool," said he, "is one product, and mutton is another. The one will always be produced at the expense of the other. If a sheep produces fine wool and in good quantity it will be at least an indifferent mutton sheep, and you never can grow fine wool on a mutton sheep, no more than you can make a good beef race of cattle out of our milk races." In Saxony, well-managed wool flocks, without any sales of bucks, but selling the "culls" or lean, rejected sheep, show an average gross receipt of 2¾ to 3 thalers per head; but if the culls are fattened the average rises to from 3¼ to 3½ thalers. A statement was given to me of a breeding flock where, for a period of 165 days, each sheep received a daily ration of 3 pounds of turnips at 6 silver groshen (15 cents) per 100 pounds, half a pound of hay at *one* thaler (75 cents) per 100 pounds, one ounce of oil cake at 1¾ thalers per 100 pounds, one pound of straw at 5 thalers per 1200 pounds and the care and attending at 10 silver groshens (25 cents); the aggregate cost was 2 thalers 26⅔ silver groshen ($2.16⅔) for the 165 days; then adding 13 siver groshens (32½ cents) for keeping the 6½ months of summer and fall, the entire cost of keeping a sheep amounts to 3 thalers 9⅔ silver groshen ($2.49⅓). But it must be considered that beside the straw, many pasture lands are used which would otherwise remain useless.

SWINE.

Westphalia.—English boars have been imported and bred to the Westphalian sows with the most favorable results.

Saxony—Like Westphalia, has imported many English boars and bred them to native sows. The result is, an earlier maturity, great improvement in the fattening qualities. The Suffolk and Berkshire are preferred, although some are very partial to the Essex. Suffolk boars bred to Mecklenberg sows produce a race of swine having the finest flavor of any pork I ate abroad. In some districts in Saxony, there is a strong prejudice against the English swine; it is held that the *quality* of the English swine is entirely too fine to thrive on the coarse pastures, and furthermore that all animals of fine quality are more subject to disease than coarse ones.

All the pork grown in Europe appeared to me to be of much better flavor and really finer texture than that grown in the Ohio Valley; our pork is *strong* and somewhat coarse besides. I had frequent opportunities of seeing the two side by side, and I imagined I could always taste the corn in American pork.

DISEASES OF DOMESTIC ANIMALS.

Province of Prussia.—Several cases of trichinæ spiralis have occured, but in all Germany I learned of *one* case only where fatal results attended, yet in almost every state or province, great fear was expressed in relation to the trichinæ. This fear of the trichinæ has had I think its full influence on swine growing. At a meeting of the Insterburg Agricultural Association, Dr. Pincus exhibited some specimens of the veritable trichinæ, and explained its natural history. This did something toward allaying the fears, yet I found many who would not touch pork until it was thoroughly boiled or roasted almost to a crisp. No cases had occurred east of the Vistula.

As this province borders on Poland, and there is considerable traffic among the East Prussians and Poles, the cattle plague *(Rinderpest)* had broke out in several places, introduced from Poland. The remedy was, that the most complete isolation was at once instituted, the local cattle markets suspended, and all live stock intercourse or traffic with Poland completely interdicted; in a very short time the Rinderpest was subdued, although it proved fatal to many of the animals attacked by it.

Posen.—The mouth and hoof disease prevailed in this province; the introduction of it is attributed to the Polish swine, great herds of which are annually brought into Posen. When milch cows are affected by these diseases, they "dry up" rapidly; beef cattle and draught oxen become very emaciated, and often cannot be used for months. A disease known as sheep pox destroyed many herds. Vertigo in sheep was increasing year after year. No trichinæ have yet been detected in either the Polish or Posen swine herds.

Saxony.—A few cases of Rinderpest broke out among cattle at a distillery in Nordhausen; other cattle were immediately vaccinated and isolated, and no new cases appeared. Another disease is among cattle, a few cases of which I had heard of in Posen, seems to be of frequent occurrence in the province of Saxony, viz.: inflammation of the spleen *(milz-brand)*. The veterinarians in the several districts have successfully used the following remedies, viz: in Halberstadt, feeding Pantile; in Querfurt, administering doses of aqua ammonia, burning or searing in the region of the kidneys with spirits, and then drenching with cold water; in Hellstadt, doses of sulphate of iron (copperas). Dr. Hildebrand, of Magdeburg (a veterinarian), prescribed arsenic and was very successful. Vaccination was tried in Halberstadt, but not with any success whatever. The hoof and mouth disease in cattle and sheep are prevalent in this province, and the most successful remedy, as yet discovered, is to make a short lane or passage, say twelve to fifteen feet long and four feet wide, the bottom or floor made water tight, so as to hold, say a depth of two to three inches of water. This basin part is filled with a solution of chloride of lime, and the sheep driven through it morning, noon and evening in going to and returning from pasture, for a period of about three weeks. There are rigid regulations throughout this province having for their object the thorough disinfection and fumigation of the railway cars in which cattle are conveyed from point to point.

In almost every considerable town throughout the kingdom of Prussia is a garrison of soldiers, and with every garrison is a veterinary surgeon, whose duty it is to practice wherever his services are required; hence, in almost every town (*not* village) there is a veterinary surgeon who has graduated either at Berlin or some other veterinary school.

BEES.

Bees are more generally kept by small farmers than by those owning large estates. The school teachers are instructed to disseminate information among the farmers in relation to them and are really very efficient in their services. Most of the farmers are abandoning the old fashioned straw thatch hive and are adopting the Dzierzon, or German Langstroth hive. After all the experiments that have been made the movable frame hive succeeds the best. Italian bees are being very generally introduced, succeed well and give good satisfaction.

SILK.

In addition to bee culture, the school teachers instruct in silk-worm rearing, and throughout the whole of Prussia it forms a considerable branch of industry for women, children, invalids and aged persons. Every where one finds the mulberry tree. The Milan and Japanese silkworms are the most popular. Silesia furnishes about 500 bushels of cocoons annually, and other provinces in proportion. Pommerania furnishes perhaps more than Silesia.

AGRICULTURAL IMPLEMENTS.

There are a few agricultural implement manufactories in Prussia, yet by far the greater part of improved or new implements are imported from England and America. There are many agricultural implement ware-houses scattered over the kingdom, in which may be found plows, drills rollers, broadcast sowers, potato diggers, &c., from America. Threshing machines made after American patterns are found on many estates, and I learned of some half dozen steam threshers. Cultivators, improved harrows and clod-crushers are in general use. Reaping and mowing machines cannot be said to be fairly introduced into Prussia, for the want of experts in handling them.

MILK.

Posen.—As a rule, the milk over and above family requirements is sold in towns (the farmers all live in villages) at an average price of one silver groshen (2½ cents) per quart. The average quantity of milk per cow (natives of course) may be estimated at 1400 to 1500 quarts—the cows on manors or large estates yielding more than those on small farms.

Pommerania.—The milk is purchased by dairymen at nine to ten pfennings per quart (12 pfennings—1 silver groshen—2½ cents) for the manufacture of butter and cheese. The thoroughbred Holland cows average 3,000 quarts, whilst the Angles yield only 2,500.

Saxony.—The production of milk is the chief object of cattle-breeding and the farms in the neighborhood of towns sell nearly all the milk produced. Dairying is yet much more profitable than to grow cattle for beef. In the district of Ranis where there are good pastures twenty quarts of milk per day is no uncommon yield from one cow. The following is an average of fifteen cows kept on an estate in Halberstadt: The summer feeding aside from straw was 100 pounds equivalent in green red clover; when clover did succeed well it was fed, when it did not succeed well then the forage consisted of lucerne, esparsette turnip leaves, vetches and clover, in such proportions based upon chemical analyses, and make the equivalent of 100 pounds of green red clover, so far as the yield of milk and nutritive properties were concerned. In winter the following rations were divided among the fifteen cows, viz: Fifty pounds of oats or spring rye straw; 100 lbs. winter grain straw; 90 lbs. pea straw; 425 lbs. turnips; 25 lbs. chaff; 12½ lbs. oil cake, equal in all to 27 lbs. hay per head. On this feed 14 cows gave 26,145 quarts of milk; 14 other head gave 27,205 quarts; 15 head gave 30,012 quarts; 16 head gave 32,700, and a second lot of 16 head gave 33,543 quarts of milk, or an aggregate of 90 cows gave 180,455 quarts, 2,050 quarts per cow per year. These 2,050 quarts were sold for $48.87½, and the calf for $3, making $51.87½, or $4,668.75 from the 90 cows. Or, if we take the fifteen cows which I first mentioned they yielded 30,750 quarts of milk; 23,950 quarts were sold at 2½ cents per quart, 6,800 quarts made 518 lbs. of butter, which was sold at 22½ cents per lb., and sixty *packs* of head cheese sold for an aggregate of $22.50, making the annual income of the fifteen head $733 or $48.88 per cow.

BUTTER AND CHEESE.

Saxony.—Butter or cheese is seldom made by the small farmers, they find that for them it is more profitable to sell the milk. When they do make either of these articles they always use the sour cream, or sour milk; but as the sour milk cheese is neither very profitable nor remunerative, most farmers prefer to feed the sour milk to the swine. On the large manors the finest, sweetest and "*nuttiest*" butter is made from sweet cream, and the sour milk *material* is forwarded per railway to Magdeburg or Berlin. The old fashioned dash churn is the one in most general use among farmers. In the dairy establishment the "ANTON" churn which received premiums in London and Paris is most popular. Thirteen to fourteen quarts of milk of the Harz cows and common cows of the province yield one pound of butter—the milk of the Holland cows not being so rich requires all of sixteen quarts to make onc pound.

AGRICULTURAL ORGANIZATIONS IN PRUSSIA.

The Agricultural Department of Prussia is a separate and distinct Bureau from all the other Bureaus. This Bureau has entire charge of everything connected with the soil or land territory of the kingdom. Perhaps the briefest and at the same time the most comprehensive idea will be conveyed by enumerating the officers and their specialties.

I. *Agricultural Bureau proper.*

Chief—Baron von Selchow, Minister (or Secretary) of the Bureau. He has *five* counsellors or advisers who, at the same time, are chiefs of subordinate divisions; and three assistant counsellors, who hold important subordinate positions. There is also a Bureau of Agricultaral Accounts, and six chief accountants, a chief register, chief of chancery, and three chancery counsellers, librarian and chancery inspector.

II. *Board of Landed Economic Commissioners.*

This body holds its sessions in Berlin, and is composed of twenty members, viz:

President, *a.** Secretary, *b.*† *a. Foreman*, who is of the oldest nobility in the country. *b.* Director of the Statistical Bureau. *c.* Director of the Royal Gardens at Potsdam. *d.* Privy Counsellor to the Minister of the War Department. *e.* General Director of Agriculture. *f.* Privy Counsellor to the Minister of Finance, together with fourteen counsellors who are estate owners. This body is really the directory or legislative body of the Bureau. I am not sure, but I think every member of this body has an office in the Agricultural Department in Berlin. The President of each of the Provincial Agricultural Societies, is, I understand, *ex-officio* one of these fourteen counsellors. There are also fifteen (or more) members extraordinary, composed of presidents of local agricultural societies, provincial agricultural directors, directors of agricultural academies, &c.

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* Chief of Agricutural Bureau. † Counsellor of Agricultural Bureau.

This body assesses all the taxes on lands and live stock; keeps the records and orders surveys; keeps the "dooms-day" book; regulates the relations between the owners of estates and renters and resident laborers; has general charge of the Agricultural Educational Institutions; regulates the rate of interest to be paid for money loaned by the State Agricultural Bank to farmers; regulates drainage, irrigation, &c.; has charge of the royal horse-breeding establishment; it publishes an official weekly and monthly journal, in which all its transactions, ordinances, &c., appear, and is edited by the General Secretary (*b*).*

III. *State Agricultural Bank.*

Director (*a*), assisted by several counsellors. This bank is somewhat similar in its organization to our recent State Bank. It has a branch bank in each one of the seven provinces. It has a State fund as capital, and negotiates loans for parties. These loans run twelve to thirty years. The commercial banks make loans for two to three years.

IV. *Revision Commissions.*

This is an organization somewhat similar to our Board of Equalization. It has a Special Bureau, a President, Chancery Counsellor, Secretary, Accountant, Registrar, and twelve members. There is a—

V. *General Commission of Agricultural Affairs,*

With a branch commission in each one of the provinces. It is through this commission that the assessment of agricultural taxes is made, (like our Auditor of State) the graduation and partition of estates, &c., &c. It holds its own special courts, and decides cases pertaining to agricultural affairs, independent of the ordinary civil courts. It acts also as an Executive and Judiciary department of the Board of Landed Economic Commissioners mentioned above. The President of the provincial branch is generally a member of the Commission II., above.

VI. *The Ditch and Drainage Commission.*

This commission derives its authority from the Board of Landed Economic Commissioners. There is a Ditch and Drainage Inspector appointed for each one of the provinces, and he is *ex-officio* President of the provincial commission. This commission has charge of laying out and constructing dykes, ditches, underdrains, draining marshes, building bridges, making embankments, changing or protecting channels, laying out and perfecting systems of irrigation, and in short has charge of waterworks of all descriptions, and are in a very largely extended sense the equivalent of our Board of Public Works.

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* These letters refer to the officers thus marked on page 151.

VII. *The Royal Horticultural College or Commission of Sans Souci.*

This commission consists of a "curatorium" or executive committee, a President, (*a*) Director and Accountant.

VIII. *The Royal Forest Nursery at Potsdam*

Consists of the same Curatorium and Director as the preceding, with a Council.

IX. *Royal Horse Breeding Establishment.*

This consists of three principal establishments, located respectively at Trakehnen, near Gumbinnen, the "Frederick William establishment," at Neustadt, and the third one at Graditz, near Torgau. These are in charge of a Lieut.-Colonel, Provincial Stable Superintendent, Stud Inspector, Chief Veterinarian and assistant, and a Steward. The officers of these three establishments meet at one place, and hold a session at the call of the President (*a*).

There are branch establishments in every province, in charge of some military officer, Stud Inspector, Director and Steward. From these branch establishments stallions are distributed to the several stations throughout the province.

This is as brief a synoptical view of the organization of the Agricultural Bureau as can conveniently be given. The agricultural societies are organized by the Bureau, and are at all times in direct communication with it, and are dependent on it for their existence as societies.

AGRICULTURAL SOCIETIES.

There is a German Agricultural and Forestry Society, something like our United States Agricultural Society—a society without a "local habitation" or a permanent place. Prominent agriculturists and foresters throughout all the German States are members of it. It held its twenty-fifth annual session in June, 1865, in the city of Dresden, Saxony, and will hold its twenty-sixth session at Vienna, Austria, in May, 1866. Of course each meeting is attended by an exhibition of live stock, agricultural implements, machines, &c., agricultural products, &c., &c. The State in which the meeting takes place defrays the expenses, and premiums, &c., are paid from the receipts.

Then there is a central agricultural association or society in every province, under the direction of the Board of Commissioners II., before mentioned. Then there are, in the aggregate, 501 circuit or district agricultural societies that report the condition of agriculture in their respective districts direct to the Ministry.

The discussions are a very prominent feature at all these annual meetings. Almost all manner of agricultural subjects are from time to time advertised to be discussed, and during the several days of the meeting these are taken up in order, and thoroughly discussed. Many of the most valuable papers on German agriculture have been brought out by and at these meetings.

AGRICULTURAL EDUCATION.

On page 31 of the Transactions of the State Board in the present volume, will be found an account of what is taught at the Agricultural Academies in Prussia. Including the Royal Veterinary College in Berlin, there are eight colleges or academies similar to the one at Eldena, in Prussia. In addition to these there are nineteen agricultural schools and academies distributed throughout the provinces, of a lower grade than the one at Eldena. Then there are ninety-nine private agricultural schools within the limits of the kingdom. And during the past few years fourteen Agricultural Chemical Experimental Stations have been established. Notwithstanding great improvements have been made in agriculture in all its branches in Germany in consequence of the dissemination of agricultural knowledge, yet the matter of agricultural education is considered to be somewhat problematical. It is the owners of the estates who are educated and not the laborers, whilst in fact it is educated labor which is required, or rather the object sought.

The following is a list of the Agricultural Educational Institutions in Prussia:

	Commenced.
Royal Academy at Eldena, Pommerania	1835
“ “ Proskau, Silesia	1847
“ “ Poppelsdorf, Rhenish provinces	1847
“ “ Konigsberg, Province [illegible]ssia	1858
Royal University at Berlin.	
Agricultural Institute at Halle, Province of Saxony.	
Forestry “ at Neustadt, Province of Brandenberg.	
Royal Veterinary College at Berlin.	

B. Schools and Academies.

PROVINCE OF PRUSSIA.

Agricultural Institute at Ragnitz, near Gumbunien	1860
“ “ Spitzings, near Konigsberg	1852
“ “ Polko, near Reichenau	1863

PROVINCE OF POSEN.

Agricultural Institute at Wielowies, near Krotaschin	1857
“ “ Wtelno, near Bromberg	1857
“ “ Chrostowo, near Usez	1857

PROVINCE OF POMMERANIA.

Agricultural Institute at Schellin, near Greiffenberg	1845

PROVINCE OF MARK BRANDENBERG.

Agricultural Institute at Glichow, near Calan	1845
“ “ Haasenfelde, near Muncheberg	1847

PROVINCE OF SILESIA.

Agricultural Institute at		Zodel, near Gorlitz	1853
"	"	Popelan	1857
"	"	Siebenhufen	1856

PROVINCE OF SAXONY.

Agricultural Institute at		Budersleben, near Halberstadt	1846
"	"	Reifenstein, near Leinefelde	1847

WESTPHALIA.

Agricultural Institute at		Riesenrodt, near Werdohl	1845
"	"	Botzlar, near Borck	1852

RHENISH PROVINCES.

Agricultural Institute at		Annaberg, near Bonn	1864
"	"	Denkliegen, near Cologne	1852
"	"	Niederweis, near Trier	1861

PRIVATE INSTITUTIONS AND AGRICULTURAL SCHOOLS.

99 distributed throughout the several provinces.

AGRICULTURAL CHEMICAL EXPERIMENTAL STATIONS.

1.	Station at	Insterburg,	Chemical	Director,	Dr. Pincus
2.	"	Kuschen,	"	"	Dr. Peters.
3.	"	Regenwalde,	"	"	Dr. Birner.
4.	"	Dahme,	"	"	Dr. Hellriegel.
5.	"	Ida-Mariahutte,	"	"	Dr. Brettschneider.
6.	"	Salzmunde,	"	"	Dr. Grouven.
8.	"	Eldena,	"	"	Dr. Trommer.
9.	"	Proskau,	"	"	Dr. Kroker.
10.	"	Poppelsdorf,	"	"	Dr. Risse.
11.	"	Waldau,	"	"	Dr. Ritthausen.
12.	"	Berlin,	"	"	Dr. Eichhorn.
13.	"	Halle,	"	"	Dr. Kuhn.
14.	"	Gorlitz,	"	"	Vacant.

CHAPTER V.

KINGDOM OF SAXONY.

Leaving the sandy plains of Mark Brandenburg for Dresden, we find the country becoming more rolling as we approach the Elbe; yet on almost every little molecule we find the inevitable *windmill*, with four, five or six vanes like long arms reaching out to gather in and concentrate the breeze. I have written out these details of Prussian agriculture *not* for the purpose of commending them for imitation here in Ohio, or in the U. S., but to demonstrate the thought, science and industry applied by a dense population to obtain a subsistence from a soil, for the greater part of which, no Ohio farmer would pay $5.00 per acre, even on a long credit.

The crops are *forced* out of the soil, rather than generously and luxuriantly produced by the inherent qualities of the soil. In Prussia there is no soil derived from the disintegration of rocks in *situ*, but as we approach the Elbe we find the soil to be derived from the rocks in the immediate vicinity, and in the kingdom of Saxony almost all the soils are derived from the rocks in *situ*—thus there are clay slate soils, gneiss soils, mica slate soils, granitic soils, &c., &c. There is no comparison, but the most striking contrast between the physical aspect of the country in Prussia generally—that of Mark Brandenburg, Pommerania, &c., in particular, with that of the kingdom of Saxony. The former are level sandy plains—the latter is very broken, hilly and mountainous, so much so that the eastern portion of the kingdom has very appropriately been termed the Saxon Switzerland.

After having made the "HOTEL DE SAXE" headquarters during my stay in Saxony, I presented my letters of introduction to Prof. Dr. REUNING, king's privy councellor and minister of Agriculture. He is a very genial and worthy man, and one to whom I am indebted for much information relative to the agriculture of Saxony.

GEOLOGY, CLIMATOLOGY, ETC.

Geologically Saxony belongs to the primitive formation, granite, gneiss, feldspar, mica slate, clay slate, &c.; here and there are found some ecene rocks, some silurian, some lower chalk, &c. Along the streams of course we find the alluvial and drift. But the soil generally is the product of the decomposed rocks in situ. From the great density of the population, the government very early paid great attention to agriculture, and instituted and enforced very rigidly laws in regard to labor—hence Saxony has not only the most dense, but the most industrious and intelligent population in Europe.

Saxony has the most comprehensive and at the same time the most detailed surveys of various kind of any kingdom I visited; it has made a complete Topographic Survey, Geological Survey, Hydrographic Survey, Natural History and Agricultural Survey. From these surveys we learn that the highest point in the kingdom is in the county or district of Zwickau (south and west from Dresden) in Oberwisenthal, and is 3,063 feet above the level of the ocean. The lowest point is in the district of Dresden in Riesa, and is 284 feet above the level of the ocean. The following will, perhaps, convey a better idea of the inequality of surface in this kingdom:

District.	Highest point.	Lowest point.	Difference.
Dresden	2,600 feet.	284 feet.	2,316 feet.
Leipzig	1,242 "	284 "	958 "
Zwickau	3,063 "	687 "	2,376 "
Bautzen	2,012 "	313 "	1,699 "
Kingdom	3,063 "	284 "	2,779 "
Average hight of kingdom above the sea			953 "

23.30 per cent. of the kingdom has an elevation of less than 500 feet above the ocean.
35.28 " " " " between 500 and 1000 feet above the ocean.
25.48 " " " " " 1000 and 1500 " " "
14.98 " " " " " 1500 and 2000 " " "
0.96 " " " " " 2000 and 2500 " " "
100.

A complete knowledge of the condition of the temperature as caused by these elevations and depressions is of the utmost importance to the agriculturist; because the climate determines the character of his crops as much as the soil does. The Saxony farmer, therefore, has spared no pains to ascertain all that science can teach him in this respect. Ten years meteorological observations, so far as temperature is concerned, gives the following result:

	Spring.	Summer.	Autumn.	Winter.	Year.
In lowlands....................	43 deg.	56 deg.	44 deg.	31 deg.	44 deg.
In highlands..................	37½ "	51 "	38 "	27 "	38 "

At Hohenheim, in Wurtemburg, the elevation is 1220 feet, and grapes are there successfully grown, whilst in Saxony at the same elevation and in the most protected localities the grapes do not ripen. Fruit, wheat and spelts are successfully grown in Swabia (Wurtemburg) at an elevation of 2000 feet, whilst at the same elevation in Saxony, wheat or winter rye seldom, if ever, succeed and so far as fruit growing is concerned it is entirely out of the question.

A comparison of the temperature of the following points may not be uninteresting; the data was obtained from records kept during ten successive years:

Place.	Hight above the ocean	Spring.	Summer.	Autumn.	Winter.	Year.
Dresden (Saxony)....	340 feet.	43 deg.	57 deg.	43 deg.	31 deg.	43 deg.
Berlin (Prussia]......	110 "	43¼ "	58 "	45 "	31½ "	45 "
Breslau (Silesia).....	430 "	42¾ "	58 "	45 "	30 "	43 "
Prague (Bohemia)....	590 "	45 "	61 "	47 "	31 "	46¼ "
Hohenheim (Wurtemburg)..............	1220 "	44¼ "	59 "	45 "	30 "	45 "

The amount of precipitation, that is rainfall and melted snow in Saxony, during the same period of ten years was as follows:

Lowlands..	19.93 inches.
Highlands..	24. "
Mountains..	28.5 "

Of this in the lowlands about 4½ inches fall in spring, 7 inches in summer, 4 in the autumn, and the remainder in the winter. In the mountains 6 inches fall in spring, 10½ in summer, 6½ in autumn, and 5½ in winter.

The climate or "lay of the land" as well as the soil is taken into consideration in valuing the lands for tax purposes, and the government has established the following classification of climate, viz: all places having

An elevation of 500 feet is classed as mild climate.
" 500 to 800 feet is classed as temperate.
" 800 to 1600 " " as raw or rough.
" 1600 and upwards is classed cold climate.

The geological structure is taken into consideration in assessing the lands, and I think it proper to devote a page to showing how nicely this survey is carried out in all its details. In the original table the number of acres of every 100 feet of elevation is computed, as well as the number of acres of each kind in the several counties or districts. I have condensed the tables to groups of 500 feet of elevations, and have entirely omitted the distribution in the several districts.

Name of Rocks.	Per cent. of area.	No. of acres at the several elevations of—					
		Less than 500 feet.	500 to 1000.	1000 to 1500.	1500 to 2000.	2000 to 2500.	Total.
Clay Slate	10.76	2,000	69,900	115,300	90,900	6,500	291,600
Mica Slate	6.57	1,000	21,800	52,800	86,100	16,300	178,000
Gneiss	13.76	11,100	31,900	126,700	184,900	18,300	372,900
Quarts, &c	0.05	....	....	500	300	500	1,300
Granulit	3.11	....	72,900	11,300	....	....	84,200
Granite and Syenite	15.42	28,000	217,000	105,900	57,900	9,100	417,900
Greenstone (of all kinds)	2.11	....	3,500	46,200	7,500	100	57,300
Serpentine and Eklogite	0.08	....	900	1,100	100	....	2,100
Porphyry and Melaphyry	5.22	36,700	80,500	15,200	2,000	7,100	141,500
Syenitic Porphyry	0.36	800	200	1,900	4,800	2,000	9,700
Basalt and Dolorite	0.47	....	8,300	4,100	200	200	12,800
Phonolythe	0.14	....	3,100	600	....	300	4,000
Grauwacke	3.48	23,100	17,000	32,100	22,200	....	94,400
Coal formation	0.40	500	1,300	9,000	....	....	10,800
Porphyry tuff	0.16	200	1,500	2,700	....	....	4,400
Red Sandstone	5.00	400	14,400	120,300	....	....	135,100
Zechstein	0.29	200	7,800	....	....	....	8,000
Variegated Sandstone	0.13	800	2,200	600	....	....	3,600
New Red Sandstone	2.98	1,100	60,000	19,600	....	....	80,700
Planer	0.61	7,800	8,700	....	....	....	16,500
Brown Coal formation	5.69	119,600	34,700	....	....	....	154,300
Diluvium	23.21	370,100	241,800	17,000	....	....	628,900
Total	100.	603,400	909,400	682,900	456,900	60,400	2,710,000

From this it will be seen that 63.09 per cent. of all the rocks *in situ* are either of igneous origin, or of the metamorphic series; 23.21 per cent. of diluvium, or lands like our Scioto and Miami Valleys, or "*bottoms*," and 13.70 per cent. of all other formations.

Notwithstanding the fact that some of these soils have been cultivated for a thousand years, they are in a better state of tilth and yield better and more regular crops than any soils I saw on the continent. Is it any wonder that these Saxony farmers are slow to believe in the "exhaustion of the soil?" Of the entire area of this little kingdom 2½ per cent. only is unproductive in an agricultural sense. The lands are divided as follows:

		Per cent.	Acres.
1.	Plow land	51.85	1,343,364
2.	Gardens	2.80	75,406
3.	Meadows	11.12	298,575
4.	Pastures	1.04	55,192
	Total agriculturally productive land	66.81	1,772,537
5.	Ditches	0.70	20,510
6.	Vineyards	0.11	3,086
7.	Forests	29.88	837,163
	Total susceptible of production	97.50	2,633,296
9.	Buildings and yards	0.59	15,959
10.	Quarries	0.09	2,586
11.	Roads, commons, &c	1.49	40,202
12.	Villages	0.33	8,897
	Total unproductive	2.50	67,644
	Grand Total	100.	2,700,940
	Geological and Topographic Survey		2,710,000
	Difference consists of streams, rivers, &c		9,060

The relative proportions of the first four items are—

Plow land	77.60	per cent.
Gardens	4.18	"
Meadows	16.66	"
Pastures	1.56	"

This is owned by 129,870 proprietors, and is divided into 1,780,686 parcels; thus making the parcels average about one acre* each. We will obtain a better idea of the division of lands from the following table:

Owners of less than ¼ acre	28,630	or 22.05	per cent.
" ¼ and less than 1 acres	9,183	7.07	"
" 1 " 2 "	12,395	9.55	"
" 2 " 3 "	8,707	6.70	"
" 3 " 5 "	11,745	9.04	"
" 5 " 10 "	14,276	10.99	"
" 10 " 15 "	7,516	5.79	"
" 15 " 20 "	6,004	4.62	"
" 20 " 30 "	9,361	7.21	"
" 30 " 40 "	7,884	6.07	"
" 40 " 50 "	5,584	4.30	"
" 50 " 75 "	5,562	4.28	"
" 75 " 100 "	1,353	1.04	"
" 100 " 150 "	608	0.46	"
" 150 " 200 "	235	0.18	"
" 200 " 300 "	279	0.22	"
" 300 " 500 "	294	0.23	"
" 500 " 750 "	164	0.13	"
" 750 " 1000 "	49	0.04	"
" over 1000 "	41	0.03	"
	129,870	100.	

There are owners of village and town lots	85,292	persons.
" " " less than 3 acres	58,915	"
" " " 3 acres and upwards	70,955	"
Total owners of real estate	215,162	"

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* 100 Saxony acres are equal to 136.89 English or American acres.

POPULATION.

The population of Saxony in 1861 was 2,225,240—of these 819,621 lived in cities and large towns, and 1,405,619 in villages or on estates. This population is equal to 8,209 for every 10,000 acres of the area, or 12,560 for every 10,000 acres of agricultural lands.

In Prussia there are 4,290 for every 10,000 acres of the area, or 5,838 for every 10,000 acres of agricultural lands.

In Rhenish Prussia 7,151 for every 10,000 acres of the area, or 10,532 for every 10,000 acres of agricultural lands.

In Hessia 5,720 for every 10,000 acres of the area, or 8,540 for every 10,000 acres of agricultural lands.

In Rhenish Hessia 9,640 for every 10,000 acres of the area, or 10,000 for every 10,000 acres of agricultural lands.

In Belgium there are 8,800 per square German mile, or about 800 per square English mile.

In England and Ireland there are 5,080 per square German mile, or about 500 per square English mile.

From this it will be seen that Saxony is the most densely populated country in Europe. The figures given above are averages only; but the population is, of course, more dense in some portions than in others—thus for instance in the county or district of Leipzig, is 68,863 for every 10,000 acres of area, or 81,184 for every 10,000 acres of agricultural lands; of Bautzen 1,984 for every 10,000 acres of area, or 4,851 for every 10,000 acres of agricultural lands. These—Leipzig and Bautzen, are the two extremes of density and sparseness.

If the population is classified according to their avocations or pursuits, we will find that there are engaged in

	Independent.	For wages.	Total persons.
Agriculture and Forestry....................	302,283	256,730	559,013
Mechanical and other industrial pursuits....	597,112	651,565	1,248,677
Trade and Commerce	69,301	103,645	172,946
Science, arts, State and Military service	95,693	57,043	152,736
Other vocations and retired................	64,597	27,271	91,868
Total.........................	1,128,986	1,096,254	2,225,240

Hence the really agricultural population, or those tilling the soil for a subsistence, amount to about 25 per cent. of the aggregate population; and every 10,000 acres in area of the kingdom furnishes agricultural employment for 2,000 persons, or every 10,000 acres actually devoted to agriculture furnishes employment for 3,000 persons, or one person to every 3⅓ acres.

The division of the lands in such small tracts as shown on a previous page, and was not promotive of the best agricultural and economic results. I have often seen tracts, of a rod wide and from 20 to 160 rods deep or long; and in this tract perhaps half a dozen different crops were growing;

there was not land enough to grow any of the crops properly, or in sufficient quantities to justify the labor expended on them; therefore the Saxony government instituted a sort of community system by which many of the smaller tracts were merged into one large one, and a regular system of rotation pursued upon it. Of course the labor, seed, implements, &c., were furnished *pro rata* by the proprietors, and the sum total of the products estimated at a cash value, of which the proprietors receive their shares *pro rata*.

In the vicinity of Leipzig there were 774 contiguous parcels, containing an aggregate of 1,065 acres, owned by 35 proprietors. Six of these owned from 50 to 66 acres each, and three owned less than 2 acres each, making an average of 30½ acres to each proprietor. It is now divided into 60 parcels, each parcel containing nearly 18 acres. Notwithstanding the fact that this tract was very even and almost a level, yet it was found to embrace six distinct classes of soil. The total amount gained by reducing the number of roads and paths on the entire tract was almost 18 acres.

AGRICULTURAL FORCE AND COLLATERALS.

No rational agriculture can exist at the present time, on any considerable scale, without live stock, either as an agricultural force, or as a matter of profit. Notwithstanding in Saxony there is almost an inhabitant to every acre, and three thousand agricultural operatives to every 10,000 acres, yet they do not dispense with the force of domestic animals; neither do the farmers of any kingdom or State know more precisely the value of animal labor. The subjoined columns will convey an idea, in outline at least, of their system of valuation.

LIVE STOCK.

I.—HORSES.

Capital.	Thalers.	Return of Investment.	Thalers.
95,642 horses of all kinds valued at 75 thalers each	7,173,150	Services of 90,000 horses at 110 thalers	9,900,000
		Value of 1,000 retired horses at 10 thalers	10,000
			9,910,000

II.—CATTLE.

	Thalers.		Thalers.
8,696 bulls at 45 thalers	391,320	Milk sold and used, exclusive of calves..........1,500 kannen (quarts) per cow=617,344,500 kan. at 7 pfennings	14,404,705
56,593 oxen and steers at 55 thal.	3,112,615	*Slaughtering Animals.*	
411,563 cows at 50 thalers	20,578,150	80,000 steers &c., at 75 thalers.	6,000,000
94,547 heifer calves at 35 thal..	3,309,145	225,000 veal calves at 4 " .	900,000
67,061 male calves at 15 thalers.	1,005,915	Services of oxen, steers, cows and heifers	3,000,000
638,460 head of cattle worth....	28,397,145	Carcasses of 15,000 dead cattle, (hides, &c.,) at 5 thalers	75,000
			24,379,705

III.—SHEEP.

	Thalers.		Thalers.
4,874 bucks at 10 thalers	48,740	Wool of 371,989 head at 1¾ thal.	650,981
142,742 wethers at 4½ "	642,339	Mutton	185,995
155,278 ewes at 3 "	465,834	Fat sheep and others exported..	60,000
69,095 lambs at 1½ "	103,642		
371,989	1,260,555		896,976

IV.—SWINE.

	Thalers.		Thalers.
270,000 at 15 thalers	4,050,000	625,000 cwts. pork at 14 thalers.	8,750,000

The Saxony Minister of Agriculture makes from this data a

RECAPITULATION.

	Capital invested in	Annual return.
Horses	7,173,150 thalers.	9,910,000 thalers.
Cattle	28,397,145 "	24,379,705 "
Sheep	1,260,555 "	896,976 "
Swine	4,050,000 "	8,750,000 "
Total	40,880,850 "	43,936,681 "

and thus demonstrates that the actual annual return is over three millions of thalers greater than the investment itself.

Taking into consideration the limited area of the kingdom, the density of the population, and the amount of live stock kept, it must be very evident that the Saxonians have learned what is not only the least possible amount of food requisite to sustain the human body, but also what kind of food contains this amount, and the cheapest manner of obtaining it in the greatest abundance. Prof. Dr. Reuning says: "The agriculture of Saxony is now in that particular stage when she cannot dispense with an extensive or widely diffused system of labor. The live stock products are not yet of sufficient importance or value to compete with those of the neighboring lands, so as to justify a change of the latter into permanent pastures; it is also policy—since the number of laborers is decreasing—to substitute the labor of live stock, as far as possible, for human labor, and eventually to replace the stock labor by machinery."

In prosperous years there is an average *meat* consumption of 50 pounds per capita, and in years when crops are affected, the average consumption does not exceed 20 pounds, or less than half a pound per week. Among the wealthier classes 125 pounds are consumed per capita per annum. Black bread is not much liked by the laborers, therefore the consumption of butter, milk and potatoes, is greater in proportion among them; they seldom have meat more than once a week, and yet are the hardiest, most robust and well knit men and women that I met abroad.

The following is the average product for a series of years in Saxony:

CROPS IN SAXONY.

Kind of crop.	AREA.		Product per acre in pounds.	SEED.		For human consumption in per cent. of crop.	For stock food in per ct. of crop.
	Pr. cent.	Acres.		Pr. acre in pounds.	Pr. cent. of crop.		
Wheat	10	140,000	1,268	178	13.6	76.3	10.0
Rye	24	336,000	1,246	170	13.6	71.3	15.0
Barley	8	112,000	1,822	148	11.1	73.8	15.0
Oats	16	224,000	1,280	169	12.7	....	87.3
Peas and vetches	3	42,000	860	286	35.7	32.2	32.1
Millet*	2	28,000	728	....	....	....	....
Flax	1	14,000	728	181	25.0	75.0	....
Rape, &c	3	42,000	1,061	1½	1.5	98½.0	....
Potatoes	10	140,000	.....	....	....	....	....

* This is fed green to live stock.

In their sales of wheat they have two rules relative to quantity, viz., weight and measure. The unit of measure is the *Scheffel*, equal to about two and a half bushels or 150 pounds. I remember when a boy at school that an arithmetical example was presented for solution somewhat as follows: "The legal standard weight of wheat is sixty pounds per bushel. Now a certain miller knew that some wheat weighed more, whilst some again weighed less than sixty pounds per bushel. He therefore established this rule, viz.: If a man brought wheat to the mill that weighed say sixty-five pounds to the bushel, he allowed that one the regular price of a bushel for every fifty-five pounds; but, on the contrary, if any brought wheat that weighed say fifty-four pounds to the bushel, the miller would allow the regular price per bushel for every sixty-six pounds. It so happened that a man brought twelve bushels by measure for which the miller allowed ten bushels by weight. How many pounds did he bring?" The Saxonians have much such a rule. If wheat weighs less than 150 pounds per scheffel, they pay less for 150 pounds of this light wheat than if it weighed more.

So long as the early farmers in Ohio lived in log cabins, and maintained their families by hunting, fishing and out of the truck patch, there was no necessity for agricultural statistics; but as the State became more densely settled, the farms opened up, canals and railroads in operation, and the agricultural products of a positive commercial and economic value, then agricultural statistics became invaluable. In Europe, especially in the most dense portions, great attention is paid to agricultural statistics as a matter of necessity, because the supply and demand become more and more equalized, and precise calculations must be made. Thus we find the most precise agricultural statistics in Saxony. From those furished me by Prof. Dr. Reuning, for a series of years, I make the following statement:

Aggregate corn* crop	15,414,840 cwts.

This may be divided as follows:

Seed	2,067,254 cwts.
Human food	8,333,671 cwts.
Cattle food	5,013,915 cwts.
Now, from the amount appropriated for human food	8,333,671 cwts.
Deduct 25 per cent. for offal	2,083,418 cwts.
Net amount of human food	6,250,253 cwts.
Now, to this offal	2,083,418 cwts.
Add the amount for cattle food	5,013,915 cwts.
Real amount of cattle food	7,097,333 cwts.

There is then really

Seed	2,067,252 cwts.	or 13.41 per cent.
Direct for human food	6,250,253 cwts.	or 40.55 per cent.
Cattle food	7,097,333 cwts.	or 46.04 per cent.
	15,414,840 cwts.	or 100. per cent.

But in the division of lands to grow these several crops, together with other necessary crops, it is found to be as follows:

Area devoted to grow seeds	112,232 acres	or 6.22 per cent.
Area devoted to grow human food, including cereals, vegetables, fruits, &c	345,680 acres	or 19.16 per cent.
Area devoted to grow cattle food of all kinds, including pastures and meadows	1,346,625 acres	or 74.62 per cent.
	1,804,537 acres	or 100 per cent.

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*Corn includes all cereals.

Saxony imports 1,800,000 cwts. of cereals, but 1,031,000 cwts. of this is consumed in breweries and distilleries, leaving less than 800,000 cwts. of cereals of all kinds imported for human food. One can scarcely avoid contrasting this state of things with the agricultural results of England, which we have been taught to regard as having attained the greatest productive capacity and best system of agriculture in the world. Saxony is more densely populated than England, and imports about *one-third* of a cent *per capita*, whilst England, from 1854 to 1865, inclusive, imported £152,491,385 sterling of wheat alone. If we estimate the *quarter* to have averaged forty shillings, then, during these twelve years, England has imported 50,830,456 bushels of wheat annually, aside from flour, corn-meal and other cereal products. Estimating the population of England at 30,000,000, then she imports one and one-third bushels of wheat per capita. Aside from animal food, the Saxon farmer lives as well as the English one. Accepting as correct data the figures obtained both in Saxony and England, I can not avoid concluding that the Saxon system has rendered the kingdom more nearly independent and self-sustaining than that of England.

In abolishing the small tract of land system, and cultivating a large area in the same crop, it became a matter of necessity to classify the soils, and accordingly the soils were analyzed, and upon the basis of their chemical and mechanical composition as well as altitude and "lay," they were arranged in twelve distinct classes. Of course, the rotation on these different kinds of soil vary, but the general system followed in the "lowlands" is what may be termed a six years' course, as follows: (1) winter crops (rye and wheat); (2) clover, or one-half rape and one-half clover; (3) winter rye or wheat; (4) hoed crops; (5) oats, spring barley, &c.; (6) one-half hoed crops or grass and one-half clover.

I visited the estates of Zornig, Löthayn and Leutewitz, near Meissen, owned by Sir Henry Adolph Steiger, for the purpose of seeing his world-renowned "Leutewitzer" fine wooled sheep. The soil on his estates are a good loam, rather inclined to clay than sand, and may, with propriety, be classed among the "lowlands," being situated but a few miles from the banks of the Elbe. Perhaps it may be as well to insert in this place a letter written home when I was in Saxony:

Saxony is more intimately interested in America and American affairs than I had ever supposed such an inland country could be. When the rebellion broke out there was a tremendous "hue and cry" in England about the sufferings of the working classes in Lancashire, Manchester, &c., although no cry reached us from Saxony, yet the Saxons suffered worse than the English did. I am told that the suffering here was in the extreme, and that actual starvation took place in some instances. When the financial crisis of 1857 swept over the United States, some of the heaviest establishments in Saxony failed in consequence. Saxony manufactures linens, woolens, cloths, laces, embroideries, stockings, &c., &c., for the American market. At Meissen is a large porcelain manufactory, employing 350 hands, which manufactures for the American market.

Agriculture is better developed, more science applied, and better results are obtained in Saxony than anywhere I have yet visited. In Prussia, that is, in Mecklenburg, Mark-Brandenburg, Pommerania, Posen and the province of Prussia, the land is owned in large bodies, the estates average 2,000 morgens or about 1,400 acres; but in Saxony the "tiller of the soil" is the owner of the land, hence the farms or tracts are small, for the population is very dense; in fact, Professor Dr. Reuning, the Minister of Agriculture for Saxony, told me that, exclusive of forest, there was just one acre of land for every individual of the population. This one acre, then, must produce the food and clothing for the individual, besides producing plants for commercial purposes. If the land were farmed as it is in the United States the Saxon must starve; but, fortunately for him, he believed that science could assist him in his agricultural operations, and he willingly accepted the counsels of science and put them into practice. There is an agricultural academy at Tharandt,* another at Chemnitz, an experimental farm at Pommritz, another at Salzmünde, &c. These schools have accomplished a vast amount of good; have made the farmer intelligent, and have made agricultural operations as systematic and intelligible as photography.

During the time I spent at Dresden, I visited estates ten, twenty, thirty and forty miles distant, in various directions, and have everywhere found the same untiring industry, thorough culture, and prudent management, and, what is more, have everywhere found the proprietors very intelligent. In order to present an idea of how farming is done here, I give the statistics of one estate I visited about twenty miles west of Dresden, the estate of Henry A. Steiger, Esq. He is the inheritor of three estates, which lie contiguous, and are known as Lõthayn, Leutewitz and Zornig. These he farms as follows:

	LEUTEWITZ.	LOTHAYN.	ZORNIG.
First year	Rape	Rape turnip	Clover.
Second year	Wheat	Wheat	Wheat.
Third year	Potatoes	Potatoes	Potatoes.
Fourth year	Oats	Oats	Barley.
Fifth year	Clover	Peas	Rye.
Sixth	Rye	Rye	Clover.

Or, in other words, the same crop would be grown the *seventh* year on Leutewitz as that put down for the first on Lõthayn; the thirteenth year on Leutewitz the same as the *seventh* on Lõthayn, or the first on Zornig, &c., &c.

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* For details of Tharandt College see page 22 of part II. of this volume.

He manures seventeen times in eighteen years, as follows:

1. *Rape.*—One and a half manuring of barn yard manure and one-half manuring with guano and bone dust.
2. *Wheat.*—No manure.
3. *Potatoes.*—Full manuring with barn-yard manure.
4. *Oats.*—Half manuring with guano and bone dust.
5. *Clover.*—Half manuring with guano and bone dust.
6. *Rye.*—Full manuring with barn-yard manure.
7. *Rübsen* (spring rape).—Full manuring with barn-yard manure and full manuring with guano and bone dust.
8. *Wheat.*—Half manuring with barn-yard manure and one-half manuring with guano and bone dust.
9. *Potatoes.*—Half manuring with barn-yard manure.
10. *Oats.*—Half manuring with guano and bone dust.
11. *Peas.*—Full manuring with barn-yard manure.
12. *Rye.*—Half manuring with bone dust.
13. *Clover.*—Half manuring with guano and bone dust.
14. *Wheat.*—Full manuring with barn-yard manure.
15. *Mangolds.*—Double manuring with barn-yard manure.
16. *Barley.*—Half manuring with guano and bone dust.
17. *Rye.*—Full manuring with barn-yard manure and half manuring with guano and bone dust.
18. *Clover.*—Half manuring with guano and bone dust.

By this system he obtains three crops of wheat, three of rye, three of clover, three root crops (two of potatoes and one of mangolds,) two of oats, and one of barley, one each of peas and rape.

Potatoes follow the wheat, and clover follows rye or oats. This system of cropping and manuring is based upon the results and observations of many years' experience, and keeps the soil in good heart all the while. A full manuring of guano and bone-dust consists of equal weight of each, and four (4) cwt. applied to the acre (Saxon.) A half manuring is two cwt. His harvests yield as follows:

Rape—12 to 20 sheffels of 150 pounds per sheffel per acre; or 23 to 37 bushels of 60 pounds per American acre.

Wheat—15 to 20 sheffels of 170 pounds per sheffel per acre; or 33 to 43 bushels of 60 pounds per American acre.

Rye—18 to 20 sheffels of — pounds per sheffel per acre; or 30 to 40 bushels of — pounds per American acre.

Barley—18 to 25 sheffels of 140 pounds per sheffel per acre; or 32 to 47 bushels of 56 pounds per American acre.

Oats—25 to 40 sheffels of 100 pounds per sheffel per acre; or 57 to 92 bushels of 33 pounds per American acre.

Potatoes—100 to 150 sheffels of 150 pounds per sheffel per acre; or 190 to 285 bushels of sixty pounds per American acre.

If the plowing, manuring and seeding are properly done, and at the right time, he says he can rely on these results. There is very little damage to the crops by insects, since the birds are protected by law, and every grove is full of the feathered tribe. The other diseases of plants are resisted by proper cultivation, the soil being put into condition to grow thrifty and strong plants; for the farmers here hold that plants become diseased by neglecting to cultivate the plant, by neglecting to prepare the soil thoroughly, and by neglecting to use the best seeds.

Mr. Steiger's live stock consists of 100 milch cows, 25 heifers, 30 farm horses, 12 work oxen, 1,000 to 1,200 head of sheep, and 30 brood sows. The milch cows are of the Holland, Oldenberg, and other celebrated milking races. He has several short-horns, but says they do not give as much milk, in proportion to the food they consume and the weight of the animal, as most of the other races. But he says the short-horns mature very rapidly, and make splendid beef. He said that, notwithstanding he had a large estate, he found it absolutely necessary to confine himself to growing that kind of crops and keeping those breeds of cattle which produced the greatest return in money; that he could not afford to indulge in fancy stock, either of horses or cattle; neither could he indulge in an "*orangiere*," or green house, but he had a very beautiful and large flower garden of hardy plants.

The milch cows are all green-soiled, thus saving in food, or rather making a small amount of food go a great way. In winter each cow gets twenty-five to thirty pounds of mangolds, four to five pounds of grains, "chopped," five to ten pounds of straw, two to four pounds of hay, and water and potato slop, as much as the appetite craves. The manure from the cattle is carefully preserved—part composted, part preserved under a shed; and a system of collecting liquid manure is fully and thoroughly practiced. On almost every farm I visited I found liquid manure applied to the growing crops.

The horses are fed, per day, fifteen pounds of oats and ten pounds of hay; the oxen are fed ten to fifteen pounds of grain, according to the labor they perform, and four to five pounds of mangolds, with potato slop as a drink. The smaller farmers cannot farm with as much perfection of system as that practiced on the estate of Mr. Steiger, but they copy it as far as they can consistently with their means and extent of land. And to write the plan pursued by these smaller farmers would be simply to write out the history of each little tract, for the reason that no two farm precisely alike; each one has some little "hobby-horse" that he is riding, but in the main the system in vogue on Mr. Steiger's estate is the general plan of farming in Saxony. In other parts of the kingdom, some one of the forage crops is omitted and flax grown in its place and since the discovery of the abundance of American petroleum, one crop of rape is introduced in an eighteen years' course, where formerly there were three rape crops. Professor Dr. Reuning, the Minister of Agriculture, and Professor Dr. Stoeckhard, of the Tharandt Academy, both informed me that if I was correct in my views of the extent of oil territory and continued supply of it in commerce, it would seriously affect the present system of farming; that then the crop of rape must be entirely stricken from the list of crops. Rape is grown for the oil it produces, but this oil is effectually superceded by petroleum. In every town and village through which I passed in Saxony, I saw signs inscribed "American petroleum."

I visited the experimental agricultural station (Versuch's station) at Pommritz, not far from Bautzen, some forty-five miles from Dresden. This station is in charge of Professor Dr. Lehmann, one of Liebig's students. He is quite a young man, full of enthusiasm, a thorough scholar and gentleman, and earnestly and wholly devoted to his occupation. In his laboratory were quite a number of pots containing artificial soils; that is to say, quartz rock was pulverized to get pure quartz; lime rock was reduced to get at the carbonate of lime; pure potash manufactured and introduced, and so of the other ingredients—all manufactured and compounded in certain proportions to make artificial soils, and in these soils various plants were growing, some thriftily, others indifferently; but the object of these experiments is to prove, in the first place, that an analysis of the soil is an approximation to the true constituents of the soil. It is to prove, in the second place, that there is a chemical condition or relation of the soil which is just as important to the crop as the *mechanical* condition is. It is intended to demonstrate, in the third place, what particular ingredients each plant requires for its normal growth and development. This latter idea is then worked out in a practical manner on small experimental tracts, consisting, say, of four square rods each tract. The first tract is well plowed and pulverized and sown in oats, but without manure of any kind; the second tract is manured with barn-yard manure; the third with guano; the fourth with bone-dust; the fifth with insoluble phosphate of lime; the sixth with soluble phosphate; the seventh with guano and bone-dust; the eighth with guano, bone-dust, and barn-yard manure; the ninth with guano and phosphate of lime, and sulphuric acid; the tenth same as ninth, with addition of potash, &c., on to number twenty. It was very evident that these mixtures affected the growth and standing of the plant. Some plots were thin, short, and of a yellowish tinge; others thick or rank, good growth, and deep green; others pale green, &c., scarcely two plots presenting the same appearance in every respect. The soil was, first of all, analyzed and record made of it; then a record made of the ingredients applied to each plot; then a record made every week of the *appearance* of the plots, and an analysis made of the plants on each plot every week; this then secures a complete history of the oat plant grown with nineteen different manures, in all its stages, in one year. Then there are twelve such plots in pease, and other plots in other agricultural plants. Then there are about fifty head of cattle, mainly milch cows, kept, in the first place, for milk; and, secondly, as living subjects to experiment upon in relation to the nutritive properties of food, the hereditary transmission of qualities in breeding, &c. The cattle are Hollanders, Oldenbergers, Bavarian or Allgauer, and Shorthorn.

Professor Lehmann is fully of the opinion that the Shorthorn is not an improved Hollander, nor an improved animal of any particular race, but that the Shorthorn is the result of a judicious crossing, in which care was taken to secure the good qualities of the original races. He does not esteem them highly as milkers; says they may have been good milkers in Collins' days, but they have been bred with a view to beef, and the milking quality, in his opinion, is pretty well bred out; he says he does not doubt that it may be bred in again, but if it is, it will be at the expense of the beef quality and early maturity.

He reasons in this way, and says it is founded on physiological laws and investigations, that when the secretion of milk is induced in a normal animal, the acquisition of fat does not take place; and when an acquisition of fat does take place, it is necessarily at the expense of the flow or secretion of milk; that the food which the animal consumes in excess of what is absolutely required to maintain its normal condition, is converted into either fat or milk, and that this excess will take, as a rule, one or the other of these directions, but *will not divide;* hence the Allgauer race, he says, has so long been bred with reference to milk, that it has become impossible to fatten a cow of this race; and the Shorthorn has, in Europe, been bred so steadily and successfully with reference to beef, that it would require many generations to make them as good milkers as the Hollanders, Oldenbergers, or Allgauers, or Swiss.

In his feeding experiments, he has obtained solid blocks of salt which weigh eight to ten pounds, has drilled a hole through the centre, and passed a cord through this hole, and fastened it to the trough, so that the animal can lick as much as its appetite craves. He says that different kinds of food require different amounts of salt, and hence he hit upon this idea of determining the precise amount of salt required by each animal, according to its age, to each particular system of feeding. The block of salt is weighed every week; the food weighed when fed, and the animal weighed morning and evening. Of course, a record is kept of every detail. He has a seven-months old Shorthorn heifer, weighing 523 pounds, of which he feels very proud. A son of Dr. Reuning, at Cunnersdorf, has a steer, a year old, weighing *a little over a thousand pounds*, of which the Doctor feels very proud. This latter steer is of the Holland breed, and, in the Doctor's opinion, is better than the Shorthorns. There is here, as in the United States, all sorts of opinions and notions about the superiority of the several races; but, after all sides have been heard, one feels satisfied that the Holland, Oldenberg and Swiss races are the highest esteemed, or most popular, as milk races, where there is no scarcity of pasture or green forage; that the East Friesian, Angle and Jutland (all small races) are the best milkers where there is a scarcity of pasture, or on small estates; but the Shorthorn is nowhere in Germany a favorite for milk.

Professor Lehmann has several Yorkshire sows, which are under a system of experiments in feeding. I find throughout Germany that most of the swine are of English breeds, and that the native German breeds have almost wholly disappeared. Professor Spinola, of the University of Berlin, had some Hungarian swine, but he told me that it was almost impossible to keep them in confinement; that they fatten with great difficulty, mature very slowly, and consequently late; and, even when as fat as they could be made, that the flesh was very tough, and tasted as though it were rancid. At a place called Moritzberg, the King of Saxony keeps a hundred wild boars "for the chase;" but I did not think it would pay to give five dollars for a drive to the place simply to see these uncouth animals.

All the agricultural implements and machines of native invention are very heavy, and to me appear very awkward and bungling. The American implements are much admired and eagerly sought for, but the supply is exceedingly limited indeed. John Bull enjoys a sort of monopoly throughout the Prussian States, as far as I have been, and in Saxony, in the sale of agricultural implements and machines, and yet our manufacturers could soon drive him from this market, if they would only establish agencies here to introduce the American agricultural tools.

Reaping and mowing machines are being introduced, but as yet the demand is very limited, and the supply less. There is no use in sending any reapers here, unless they at the same time are self rakers; hence McCormick's is the most popular, and these are furnished by Burgess & Key, of England, and, as a matter of course, are of English manufacture. What the Germans want is our ash and hickory wood, and our malleable iron; therefore they prefer American-made machines, rather than to manufacture them here or in England. American plows are much liked and very popular in Saxony, but not the hundredth part of the demand can be supplied. John Bull has endeavored to supply this market, but the Germans very much prefer the American ones. Then our spades, manure forks, pitch or hay forks, and even down to household implements and tools, are sold as rapidly as they arrive, so that no stock remains on hand. A member of a heavy and very responsible firm in Dresden told me that he purchased all the American tools and implements that were for sale at the Hamburg exhibition, brought them home, and in a few days they were all sold; then he commenced sending orders to the manufacturers in America, but could not get more than one order in ten filled, or, in other words, if he ordered ten dozen of any kind of implements, he could not get more than one dozen. He said that notwithstanding the very high price in America, the insurance, freight, and tariff in Europe, yet he could sell more American implements in a less time and with greater profit, than he could of any other kind. Can we not manufacture enough in the United States to supply our own and the European demand? If we have not laborers enough, send over here to Saxony and induce some of the Saxony mechanics to go to America, and we will get a first class population and set of workmen.

Much of the clay land in Saxony is underdrained with tile. They underdrain there for two reasons; first, actual experiment has demonstrated that thoroughly underdrained soil not only produces greater and better crops, but is at the same time much easier to work; and this is no small item where lands are plowed five or six times before it is seeded down; secondly, if a clay soil is not underdrained, then it must be plowed into lands, and about every tenth furrow is left for a water course to drain off the surface water; in a ten acre field it is estimated that an entire acre or one-tenth is thus unproductive. The actual market value of this one acre would pay for underdraining the whole ten acres, and then the entire area would be productive. Thus, in order to secure a larger productive area the Saxons have underdrained if for no other reason.

The sandy soils are plowed only to cover the manure, and as a rule, plowed but once for each crop; they hold that much plowing plows the "life out of sand."

For manures, notwithstanding the fact that bone dust, Baker, Peruvian and Chilian Guanos, as well as superphosphates, have been introduced, and are what *we here* would consider very extensively used, yet, after all, their chief reliance is on barn yard manure. From their very limited area, and dense population, cattle breeding cannot be so extensively conducted as in some other countries; hence, they regard cattle as a "*necessary evil,*"—regard them essentially necessary to produce manure, but would dispense with them so far as the other benefits are concerned, except for milk.

In Saxony rather than in England, have the advocates of the nitrogenous manures stood directly opposed to the advocates of Leibig's "Mineral Manure" theory. Every "inch of the ground" occupied by either party has been severely contested not only polemically, but experimentally and practically. The advocates of the nitrogenous theory found that the nitrogenous manures yielded a greater amount of vegetation; that is straw, chaff and leaves, but that the yield of grain was even less than when left unmanured, and have now settled down into the belief that the atmosphere furnishes all the nitrogen necessary. The other party now claim that the plant derives all its nutriment from the soil; that through rains, snows, &c., as in barn yard manure, a sufficient supply of nitrogen is provided for the plant. At a place called Stasszfurt a very cheap form of potash is produced in great quantities and sold as a manure. On strong clays it has as yet produced no effects, but on lighter soils is said to be advantageous. There are some fifty bone dust mills in Saxony, which import the "raw" material from Prussia, Hannover, Bavaria, Wurtemburg, &c., but the supply does not equal the demand for this small kingdom. Underdraining and artificial manures, as well as more extensive application of barn yard manures, have greatly increased the productive capacities of the soil, and it is now stated that the soils of Saxony are more fertile than they were three hundred years ago. The Saxons are of opinion that the more the soil is worked or stirred the more productive it will be, and all manner of debris and offal, straw, the woody part of flax stalks, tan-bark, leached ashes, in fact, everything which cannot be appropriated for any other purpose, is carried on the clay fields and serves to prevent the clay from packing if it answers no other purpose; hence, their dwellings and stables are models of cleanliness and order, because every available thing is used for manure.

CULTIVATED CROPS.

Of the cereals, rye is cultivated to a much greater extent than any other. Wheat is cultivated for export rather than home consumption. The increase of population has caused an increased extent of area to be devoted to barley, and the live stock has increased the area of oats. Rape and poppies are grown on the richest and best soils for oil. Of leguminous plants, peas occupy the first rank, because, like our Indian corn, they serve at the same time as food for "*man or beast.*" It has been ascertained that ten bushels of peas contain as much nitrogenous or flesh or muscle forming material as eighteen bushels of wheat or twenty-two bushels of rye. This estimate is based on the fact that a very great proportion of the nitrogenous matter in wheat and rye is contained in the bran, while the pea is consumed entire. Vetches, beans, and lupines, are not extensively grown.

Of forage plants, red clover is the most generally grown. The white clover and Swedish clover are grown in mixtures with other plants—but not to any great extent. Lucerne is not regarded with much favor. Cultivated grasses are being introduced. Potatoes was the main crop for both man and animals, and as the cheapest material which can be obtained from which to distil spirits or whisky, until the crops failed from the " rot," since then the beets and sugar beets have striven for the supremacy. Agriculturally, the Saxons are very close observers, and find their reward by adopting their practice as much as possible in accordance with natural laws. In 1855 a series of experiments were made with sugar beets, and kohlrabi, by planting small tracts of equal size at various elevations, and the results were as folllows:

At an elevation of—

578	feet, soils of	second	to	fourth	class, yielded			1,159.4	cwts.	sugar-beets	per acre.
803	"	4th	"	5th	"			852.6	"	"	"
1,380	"	4th	"	5th	"			544	"	"	"
770	"	4th	"	7th	"			647.8	"	Kohlrabi	"
1,260	"	4th	"	7th	"			623.2	"	"	"
1,897	"	4th	"	7th	"			431.8	"	"	"
762	"	2d	"	4th	class,	29,220	plants yielded	1,065.3	cwts. of	beets.	
977	"	4th	"	5th	"	28,470	"	969		"	
770	"	5th	„	7th	"	25,080	"	823.7		Kohlrabi.	

In many parts of Saxony our Indian corn—more especially what is known as the " horse tooth " variety, but what is known in Ohio as the white dent—is in great demand for broad-cast sowing, to be cut for green fodder in July and August after the clover crop is exhausted or made into hay. In my opinion the soil is rich enough, and therefore, I attribute it to the climate as being unfavorable for the growth of hops and tobacco.

Notwithstanding the central portion of Saxony is less than one degree of latitude north of the centre of the best wine region of Europe, yet Saxony is not now a wine producing country in any sense of the term. As early as the eleventh century, when native forests gave shelter or protection to the vines in the vicinity of Meissen, Dresden, &c., Saxony produced wines of good quality and in considerable abundance; but at present the grapes grown there even in the most protected portions either do not ripen at all or else ripen so very irregularly as to be unfit for any other purpose than vinegar or distillation.

Fruits—that is, apples, peaches, pears, prunes and apricots—are not grown to any considerable extent, and of these that are grown, the very best of early varieties only are in general cultivation. Cherries succeed admirably, and in June I was favored with some of the most delicious ones of the "Ox Heart" variety I ever tasted. Strawberries are cultivated in a few gardens of the nobility only. As a rule, I think the Germans on the continent regard fruits with less favor than any other nation. Certain it is, that they manifest more indifference than any others that I met.

Vegetables are not as extensively grown as with us. Tomatoes and "pie plant," or the Linnean rhubarb, are grown as ornamental plants. A German would as soon think of eating a "jimsen weed apple (fruit of *Datura stramonium*) as a tomato; and as for "*pies*," the Germans are blissfully ignorant that any such thing exists in the world; the "pie," and especially the "pumpkin pie," is an exclusively Yankee invention. Excellent asparagus is found everywhere in Germany; so also is lettuce, cabbage, cucumbers and string beans. I saw no raspberries or blackberries, and was informed that there were no cranberries in all Europe. I could see nothing of watermelons or muskmelons, but purchased some of the finest sweet oranges for about *four* cents a dozen.

So far as meadows are concerned, there is no special attention paid to them. Land is too much required for cereal and forage crops, to devote any that can be used for either of these purposes to the culture of artificial or meadow grasses. Cultivated meadows are confined to tracts of land—

1. Where climatic influences do not permit other cultivated crops.
2. Where the condition of the land will not admit the plow.
3. Where the land is annually liable to be flooded.
4. Where the soil is wet, and too low to be drained.
5. Where the soil is too poor to grow other forage plants.
6. Where the soil is so situated that water impregnated with manure will flow on or over it.

All the meadows in Saxony may be classed under one or the other of these categories.

Considerable attention is given to forestry, which is not only an indispensable portion of agriculture there, but is also a profitable one. It is estimated that up to the sixtieth year, the forest increases at the rate of one cord of wood (Saxon measure) per annum, and at the regular forest market price, the wood will sell for a sum equal to the capital upon interest at four per cent. for the period of sixty years. In a country where money may be borrowed for three to three and a half per cent., a forest yielding four per cent. is considered a good investment.

Saxony is anxious to introduce all the labor-saving machines possible, and I was surprised to find quite a number of American machines there. Reapers, mowers, steam threshing machines, improved straw cutters, plows, and many of our hand implements, were already introduced. Our malleable iron, hickory and ash wood give American machines and implements the preference to any others in all Europe. So anxious is the Government to introduce the best machines, that it has established an agricultural implement and machine warehouse in Dresden, in charge of Messrs. Shubart & Hesse, and has, within the past few years, expended about $10,000 for model machines and implements, and has given special encouragement to Saxon artisans to manufacture a supply for the kingdom of the most excellent and desirable ones.

The collateral branches of agriculture, such as the manufacture of tile, distilleries, breweries, etc., are fully equal to the demand. The internal revenue derived from breweries in 1840, was 226,100 thalers, and without any increase in the rate of assessment, the revenue amounted to 377,270 thalers in 1863, showing an increase of over 66 per cent. The revenue on whisky in 1840 was 318,338 thalers, and in 1863 it amounted to 766,146 thalers, or an increase of 140 per cent. The manufacture of sugar from beets has not yet obtained any footing in Saxony, although large tracts of land there are admirably adapted to the culture of the beet.

Several attempts have been made to render the manufacture of flax a separate and distinct branch of industry, but all have failed. The culture and manufacture remain, as a general thing, in the hands of the farmers, who grow the flax, ret it, and prepare it for spinning, which is generally done in the family. Lace making, curtain embroidery, linen sewing-thread making, and the coarser kinds of linen cloths, toweling, sheeting, napkins, &c., &c., are carried on by the wives and daughters of farmers, mechanics and laborers.

LIVE STOCK.

It is often a difficult task to ascertain the number of horses, cattle, sheep and swine in a German State—even from their statistical tables—for the reason that they have adopted what might be called an "aggregate," or "*conglomerate*" system, as I always named it. By this system all the live stock is reduced to the standard of neat cattle. I remember inquiring of a very intelligent gentleman how much live stock they had in the province. He answered very promptly, "Reduced to neat cattle, we have ———," so many thousand. "But how many of each kind—how many horses, cattle, sheep and swine?" "Ah yes," said he; "if you wish to know how many stallions, geldings, mares and colts—how many bulls, cows, oxen and calves—how many bucks, wethers, ewes and lambs—how many boars, hogs, sows and pigs there are, then you must apply to the Ministerium of Statistics, for we very seldom get these details."

Cattle are the standard; and 3 head of cattle are estimated as being equivalent to 2 horses, 30 sheep, or 12 head of swine. Thus if a farmer has 3 head of cattle, 2 horses, 30 sheep, and 12 head of swine, he will tell you that his live stock is equivalent to 12 head of cattle. For future comparisons in our country, it may be well to record the live stock population of some of the leading kingdoms on the Continent. For every 10,000 acres of cultivated land

In Prussia, there are equivalent to	**3,336 head of cattle.**
" Saxony, " "	**5,004 "**
" Bavaria, " "	**3,681 "**

In Wurtemburg, there are equivalent to	4,466	head of cattle.
" Hanover, " "	2,470	"
" Baden, " "	3,914	"
" Grand Duchy of Hesse, there are equivalent to	3,885	"
" Kurhessen, " "	3,103	"

Some idea of the relative estimate in which the several kinds of live stock were held, may be formed from the following: Saxony had,

In 1768, an equivalent of	592,000	head of cattle.
" 1834, "	744,000	"
" 1850, "	848,000	"
" 1861, "	887,000	"

Showing an increase of only 50 per cent. in about a century.

For every 100	horses in 1768,	there were	177	in 1861.
" "	cattle "	"	186	"
" "	sheep "	"	37	"
" "	hogs "	"	38	"
" "	horses in 1834,	"	130	"
" "	cattle "	"	117	"
" "	sheep "	"	61	"
" "	hogs "	"	258	"

In other words, one hundred years ago, Saxony had 1,005,000 head of sheep, and to-day has 372,000 only. From this we learn that, as the population becomes more dense—the lands necessarily more valuable—that wool-growing will decrease. It is a well-known fact that Saxony wool has always commanded the highest price both in the Continental and English markets, and therefore the decline in wool-growing cannot be attributed to a decline in the price of wool. And even during the past thirty years, with sheep that shear more than double the weight of fleece that the old Saxony Merinos did, we find only 61 sheep in Saxony to-day for every 100 that were there in 1834. The Saxonians have no love for cattle; they regard them as a "necessary evil," yet these have nearly doubled in number during the past century, and have increased 17 per cent. since 1834. It is well for the farmers of Ohio to ponder on these facts; for the reason that, if, with our comparative cheap lands and sparse population, Congress must be besieged with petitions for a tariff to protect the United States wool-grower against foreign competition on wool, is it not reasonable that cattle-raising proper would be profitable in a series of years, especially as we in Ohio have only about one-half the number of cattle we had in 1860, whilst we have about double the number of sheep we then had? Saxony contains an area equal to about one-seventh of Ohio, and the number of sheep in Ohio at present is in round numbers about the same *per square mile* that Saxony had in 1768, or when it had its maximum number. Can we now increase the number in Ohio, without neglecting other equally important branches in agriculture?

For every 10,000 inhabitants in Saxony there is an equivalent of 3,985 head of cattle.

Furthermore, on every 10,000 cultivated acres there are 540 horses to 319 oxen, as animals of labor. Notwithstanding the fact, that many Saxony farmers insist that oxen are better adapted for some portions of farm work, and cheaper in price than horses, cost less to keep, and in the end may be fattened and sold for the shambles, yet they do not increase in the same relative proportion that horses do; for instance—

From 1834 to 1861, all kinds of cattle increased 17 per cent.
From 1835 to 1861, horses increased 30 per cent.

For actual farm labor there are on every 10,000 cultivated acres, according to enumeration of 1844, 218 span of horses, and 118 yoke of cattle.

Then, too, it must be remembered, cows are worked under the yoke to a very great extent; that is to say, 37 per cent. of the cultivated land is owned by small farmers in parcels of from three to ten acres, and these farmers as a rule work cows and heifers, but seldom own a yoke of work oxen.

Viewed from another stand-point: for every 10,000 inhabitants there are 430 horses, 254 steers and oxen, 1,850 cows, 726 cows and heifers, 1,672 sheep, 1,215 swine. Or for every 10,000 head of cattle there are 1,498 horses, 886 steers and oxen, 6,446 cows, 2,531 heifers and calves, 5,827 sheep, 4,236 swine. For every 10,000 cows there are 211 bulls, 1,375 steers and oxen, 3,926 calves and heifers.

Like most of the German States, horse-breeding in Saxony, of better strains, is now being conducted by Government, but with this difference, viz., that the stallions kept by Government are best adapted to the wants of the agriculturist, and less in the direction of military purposes than in Prussia and Hannover. From the official returns it appears that, for a series of years, 40 per cent. of the mares served produced living colts. But the great demand for horses have induced farmers and others to work the mares when heavy with foal, and on the other hand, to work horses when entirely too young, so that many horses are ruined before they are fully developed.

It is estimated that a serviceable animal, whether horse or mare, consumes annually about 150 cwt. of hay, 60 cwt. of grain, and 50 cwt. of straw, and the question is an open one with many farmers whether this provender could not be made to yield more by feeding to some other species of domestic animals. A gentleman who had charge of a private breeding establishment told me that every live colt cost when dropped 30 thalers; the items of cost were made up of interest on the capital invested, loss of the services of the mare before and after dropping the colt, stallion fees, and the pro rata of stallion fees for mares that did not produce a live colt, food of the mare while not in service in consequence of pregnancy, and afterwards until fit for service.

RECORD OF THE SAXONY STUD FOR 1863.

	MARES		Colts dropped.	Per cent. of Colts dropped to Mares served.
	Served.	Refused service.		
Once	1,360	486	521	38·3
Twice	850	203	31	37·1
Three times	305	78	105	34·4
Four "	92	27	32	34·8
Five "	33	11	16	50·0
Six "	11	4	4	36·4
	2,651	809	993	37·4

Total No. of Stallions 72

Name of Stallion.	Age of Stallion.	Number of Mares served.	Living Colts dropped.	Per cent. of Colts to mares served.
Brownlord	20	22	12	42·2
Alcidor	20	23	7	
Bolivar	19	30	12	40·0
Ariel	18	32	11	29·0
Achilles	18	35	6	
Douglas	18	47	16	
Boreas	17	42	17	41·5
Emilius	17	54	23	
Belisar	17	22	9	
Fingal	16	49	10	20·0
Columbus	16	21	4	
Focus	15	41	11	39·3
Despot	15	15	10	
Cyrus	15	23	12	
Draco	15	22	8	
Emir	15	6	1	
Elliott	14	21	5	23·8
Jason	13	48	14	35·6
Fidelio	13	63	33	
Felix	13	32	5	
Gladiator	13	58	26	
Marquis	13	100	30	
General	13	57	17	
Grief	13	13	6	
Goliath	13	22	9	
Hetman	12	56	14	25·3
Pius	12	17	5	
Lucifer	12	22	5	
Janus	11	29	14	38·7
Hannibal	11	31	8	
Laufza	11	51	21	
Lionel	10	64	42	51·9
Marmont	10	46	25	
Jordan	10	46	10	
Kobald	10	33	21	
Kastor	9	31	10	37·0
Narciss	9	25	11	
Koylan	9	39	16	
Leonidas	9	34	7	
Kodrus	9	33	16	

Record of the Saxony Stud for 1863—Continued.

NAME OF STALLION.	Age of Stallion.	Number of Mares served.	Living Colts dropped.	Per cent of Colts to mares served.
Omar	8	54	17	34·5
Lootse	8	30	8	
Neptune	8	51	25	
Minus	8	38	12	
Mozart	8	32	11	
Landsknecht	8	63	26	
Onyx	8	57	20	
Latour	8	39	15	
Magnet	8	50	10	
Mammeluke	8	15	4	
Monarch	7	47	21	40·7
Morwick	7	26	13	
Marshall	7	31	7	
My Lord	7	56	26	
Milton	7	54	20	
Ninus	5	36	11	43·6
Ocean	6	65	29	
Ossian	6	55	16	
Nile	6	36	19	
Oswin	6	45	29	
Nelson	6	48	20	
Quell	6	2	1	
Pollux	5	44	25	40·0
Paul	5	33	10	
Orcan	5	52	13	
Orpheus	5	41	22	
Orion	5	30	10	
Planet	4	41	10	21·2
Pasha	4	16	3	
Pan	4	5	1	
Pilot	4	3	....	
Quercus	4	1	....	

ONE STALLION SERVED—	Per cent. of Colts produced.
Mares—	
100	30·0
From 60 to 69	51·0
" 50 to 59	35·2
" 40 to 49	39·3
" 30 to 39	33·9
" 20 to 29	39·2
" 10 to 19	36·8
" 1 to 9	17·7

I thought it not improper to append these results of the Saxony Stud for 1863; the returns for 1864 were not yet complete when I was in Dresden. This record is less satisfactory in some respects than that of Prussia, but more satisfactory in others, especially as it gives the ages of the stallions and the number of colts got by each; but it is defective in not stating sexes of the colts, as well as the number of miscarriages, and dead colts.

It will be observed that in Saxony a less per centage of colts are produced than in any of the above-mentioned countries. This record proves clearly that the small per cent. of colts produced cannot be attributed to the age of the stallion, nor to the number of mares served; for example, "BROWNLORD," at 20 years of age, served 22 mares and got 12 colts—or in other words, more than fifty per cent, of the mares served by him produced living colts; whilst "MAGNET," at 8 years old, served 50 mares, and got 10 colts, or 20 per cent.; and "PASHA," at 4 years old, served 16 mares, and got 3 colts, or less than 20 per cent. With regard to the *number* of mares served, "MARQUIS," at 13 years of age, served 100 mares, and got 30 colts; whilst "FELIX," of the same age, served 32 mares, and got 5 colts, or a little over 15 per cent., or about one-half the proportion that "Marquis" got.

CATTLE BREEDING.

It is claimed that the cattle breeding of Saxony has been retarded for more than half a century by the prominence and zeal bestowed on fine-wooled sheep, and because cattle, upon general principles, were regarded as a necessary evil only. The high price of the fine wools made sheep-breeding the leading branch in the breeding of domestic animals, and as a matter of course engaged the best minds and directed the energy and enterprise in this direction, to the detriment of other branches. The profits or income derived from cattle did not compare with that of sheep-breeding—the price of milk, milk products and of meat were at a minimum and in so little demand, that cattle deteriorated to the merest "*scrubs*," and only in Voigtland was a pure race to be found. But however little cattle were regarded or appreciated, they were indispensable, and since the wars of Napoleon the interest in cattle has increased, while that in sheep has in a corresponding ratio decreased. During a period of more than twenty years the Saxons endeavored to improve the native stock of cattle by care and attention, but in 1836 the first attempt was made at a systematic effort to produce better breeds by cross breeding, and 68 bulls were imported from Eggerland, Allgau, Oldenburg and Holland, and distributed at specific localities throughout the kingdom. The results of this importation were favorable, but it was found that unless cows of the same breeds were imported in order to preserve and continue the stock pure, that the imported blood would either be absorbed, or else must constantly be renewed. The Government therefore offered a bonus of 50 thalers to every one who would import ten cows or ten heifers, in calf, of either of the above-named pure breeds. From 1844 to 1851 there were in consequence of this bonus 509 cows imported from Allgau and Holland. The bonus was then changed to premiums on the best pure-blooded bulls raised in Saxony. A sufficient interest is now manifested by those interested in cattle-breeding, that importations are annually made from Holland, Allgau and Oldenburg; and recently, Shorthorns have been introduced.

That race ot cattle which will yield the greatest amount of milk from a given quantity of food, is the race destined to become the most popular. Saxony has not yet arrived at that stage when she can dispense with the labor of cattle, nor yet when she can afford to grow cattle for beef only; although she is dispensing with work cattle as rapidly as she can, and sees the day is not far distant when she will obtain beef and fat from young instead of old cattle. In Saxony the lowland breeds may be seen side by side with the mountain breeds, and the difference in structure is manifest at a single glance The lowlands have heavy shoulders, deep chest, and light hindquarters, whilst the mountain breeds have heavy hindquarters, and comparatively light shoulders. The lowland breeds, ranging over level pasture, rest more of their weight on the fore legs, and this habit, in course of time, develops the shoulders; whilst the mountain breeds, in the mountainous districts, rest their weight whilst grazing on the hind legs, and hence develop the hinder portion more than the fore. Again, in the lowland breeds, pasturage has a greater tendency to increase the flow of milk, whilst the mountain pasturage has a tendency, in the mountain breeds, to form flesh and give strength to the muscular system. Experience has taught the Saxons that cattle imported from lowland into higher or broken regions, give a greater flow of milk than their progeny. Stall feeding gives lowland cattle heavier hindquarters than ranging in pastures, and also gives mountain breeds heavier forequarters. The Saxons are of opinion that for the best combination of the three purposes, viz: for milk, under the yoke, and beef, in the same animal, the mountain breeds are the most desirable; if milk and beef only are required, then they prefer the lowland (Holland) breed; and, finally, the Shorthorn for beef only.

The Saxons insist that the Devon breed of cattle are simply the Voigtlander breed acclimated in England. Certain it is, that the general contour is the same; the color is precisely the same; the white or waxy muzzle, a black or spotted muzzle being a sure indication of a cross; the tips of the horns and end of the tail white, but other than this, not a white spot is to be found on the body. Devonshire, in England, is very similar, in its general contour, to some portions of Saxony. It must be a subject replete with great interest to the cattle breeder, to study the so-called original breeds of the mountainous regions of southern Europe, and compare them with those of the lowlands of northern Europe. It has been definitely ascertained that whilst the lowlanders yield a greater quantity of milk, that the milk of the highlanders contains sixteen per cent. more *solid* matter.

Experiments made in Saxony demonstrate that late maturity may be changed into early maturity, and this latter quality made perfectly hereditary. The Saxon breeders make the following statement in relation to this subject: "It is a very common practice to wean the calf at ten to fourteen days, in order to secure the milk for family or commercial purposes. The calf then is compelled to subsist upon food for which its organization is not yet adapted, and the period at which it naturally makes the most rapid growth is completely checked. In the course of a very few years, comparatively, the Voigtlanders have grown bull calves which, at *nine* months of age, weighed over 500 pounds more than they did at birth; but rearing calves in the usual method, it is seldom that a two-year-old weighs more than 500 pounds."

There are now in Saxony 120 cows for every 100 that were there in 1834, and 94 oxen and steers only for every 100 in 1834—showing a gain of twenty per cent. in cows, and a decrease of six per cent. in oxen; whilst the actual cattle increase has been seventeen per cent. only. The kingdom averages 2,323 cows on every 10,000 acres of cultivated land. (See table and note on pages 184-5.)

SHEEP BREEDING IN SAXONY.

Long before Merinos were imported from Spain into Saxony, the latter country was producing the finest wool in Germany, and exporting it to other countries.[*] Except in Saxony, the native sheep only was known. This was a sheep of rather large stature, with pointed face, long ears,

NATIVE GERMAN SHEEP.

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[*] A. Körte, das Deutsche Merino Schaf, Breslau, 1862.

Comparative Table of milking qualities of Cows in Saxony.

YEAR.	ALLGAUER.*			HOLLANDERS.			OLDENBERGERS.			SIMMERTHALER.†			NATIVE.			WALZTHALER.		
	Average.	No. of Animals.	Maximum.	Average.	No. of Animals.	Maximum	Average.	No. of Animals.	Maximum.	Average.	No. of Animals.	Maximum.	Average.	No. of Animals.	Maximum.	Average.	No. of Animals.	Maximum.
	Kannen of milk.		Kannen of milk.															
1852	2932	......	......	3272	......	......	......	......	......	......	......	......	2212	......	......	......	......	......
1853	3044	245	5185	3267	55	6770	3225	34	4664	......	......	......	2411	52	5258	......	......	......
1854	2856	190	4756	2992	51	5530	3003	32	4858	......	......	......	2018	17	2803	......	......	......
1855	2810	304	5450	2676	65	5251	2846	46	4334	......	......	......	2303	23	3122	2413	38	5742
1856	3050	398	4911	3132	61	3965	2806	37	3813	......	......	......	2635	57	3877	2488	42	3274
1857	3058	300	5192	3169	55	5171	3309	38	5160	......	......	......	2749	28	3695	3526	4	5114
1858	2927	216	5005	3138	42	4707	3081	41	4717	2325	571	75	2748	21	3707	......	......	......
1859	2805	170	4510	3201	57	6241	3269	83	5696	......	......	......	2764	22	4067	2516	3	3337
Average	2935	261	5001	3106														

* The Allgauer cows and heifers are, as a rule, put under the yoke; several experiments have demonstrated that cows under the yoke give 10 per cent. less milk than those not worked. The development of the milking qualities in 14 Allgauer cows was as follows, viz.:

After first calf	2963	milk average.
" second "	3260	" "
" third "	3712	" "
" fourth "	3950	" "
" fifth "	3784	" "
" sixth "	3922	" "
" seventh "	3755	" "

SIMMERTHALER RACE.

† A series of experiments with the Simmerthaler race has developed the following facts, viz.: the average live weight of the cows was 1300 pounds:

When 2 years old they weighed	1159	pounds.
" 3 " "	1202	"
" 4 " "	1243	"
" 5 " "	1276	"
" 6 " "	1319	"
" 7 " "	1327	"
" 8 " "	1361	"
" 9 " "	1308	"
" 10 " "	1355	"
" 11 " "	1343	"

Experiments with 239 cows showed the following development of milking qualities, viz.:

After the first calf	1749	milk average.
" " second "	2168	" "
" " third "	2437	" "

broad neck and back, broad hips, wide chest, long feet, and altogether of a lank appearance. But they were a profitable sheep, because they were readily fattened, and were by no means select in their food. They could endure the greatest heat and withstand the severest cold; hence they were scattered all over Germany, from the Alps to the North Sea. They are yet to be seen in large herds in Bavaria, Wurtemberg, Baden and Hesse.

The fine-wooled sheep of Saxony were called "Electorals," and produced a fine, soft wool, which was eagerly sought for by dealers and manufacturers. The Electoral sheep had a delicate, rather small frame, and fine bones. The head narrow, rather long than short, pointed nose, the neck long and ridged; the back also ridged or sharp, and the body not specially barrel-formed. The face free from wool, but covered with

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After the fourth calf,	2342 milk av'ge.			After the seventh calf,	2292 milk av'ge.		
" " fifth "	2562	"	"	" " eighth "	2396	"	"
" " sixth "	2584	"	"	" " ninth "	2240	"	"

The maximum amount of milk was obtained after the sixth calf, and the cow had the greatest live weight at eight years of age.

Of 131 cows whose average weight was 1412 pounds, dropped bull calves.
" 108 " " " " " 1251 " " heifer "

The average weight of 42 heifer and 74 bull calves, was:

	Heifer calves.	Increase per cent.	Bull calves.	Increase per cent.
At birth	80	—	88	—
Three months—past	233	291	353	401
Six "	357	153	472	134
Nine "	555	155	625	132
Twelve "	608	109	750	120
Fifteen "	806	133	825	110
Eighteen "	1025	127	882	107
Twenty-four "	1180	115	1300	147

A seven-year old bull weighed 2700 pounds.

The average weight of 30 cows the day *before* calving, was		1450 pounds.
" " " " " " after " "		1304 "
Difference		146
Weight of calf	85	
" after birth	12½	
" fluids	48½	—146

The calf weighed 1-16th of the live weight of the cow.

FEEDING EXPERIMENTS.

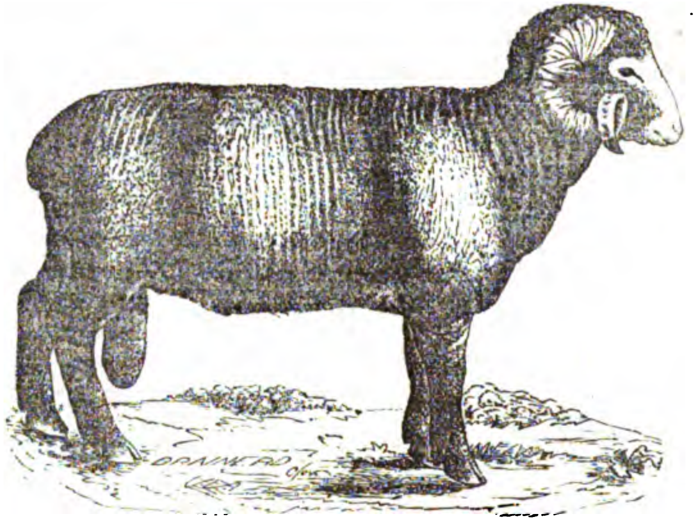
The feeding experiments carefully observed during a period of five years, demonstrate that *one* cwt. of hay or its equivalent, produces in the

	Milk.		Butter.	
Allgauers	29.3	kannen.	2.32	kannen.
Hollanders	25.5	"	1.76	"
Oldenbergers	24.7			
Natives	23.1	"	1.78	"

I was furnished with the details of the feeding of most of the cattle named in the above table, but it would require entirely too much space to repeat them here.

NOTE.—The milk is put down in Saxony *kannen*, which is somewhat more than a quart; or, to be more precise, the *kanne* is 0.318 of a gallon—the *kanne* for the butter is 2.47 pounds—thus, the average maximum yield of the Allgauer cows in the above table is 5001 *kannen*, equal to 6360 quarts. The maximum yield of a Holland cow in 1853, is stated in the table at 6670 *kannen*, which is equal to 8484 quarts, or 23¼ quarts as a daily average during the entire year.

soft, downy hairs, and even these often were wanting about the eyes, which gave the eyes the appearance of being encircled by a pink belt the ears often without these hairs, and semi-transparent. The fine, thin, long legs were partly covered by a short, thin wool, and were also partly entirely free of hair or wool; the belly had either thin, short wool, or else was bare. The wool, in the densest portion, had very little yelk, which became fluid at a rather low temperature, and was easily washed out; and was from one-half inch to one and one-half inches in length.

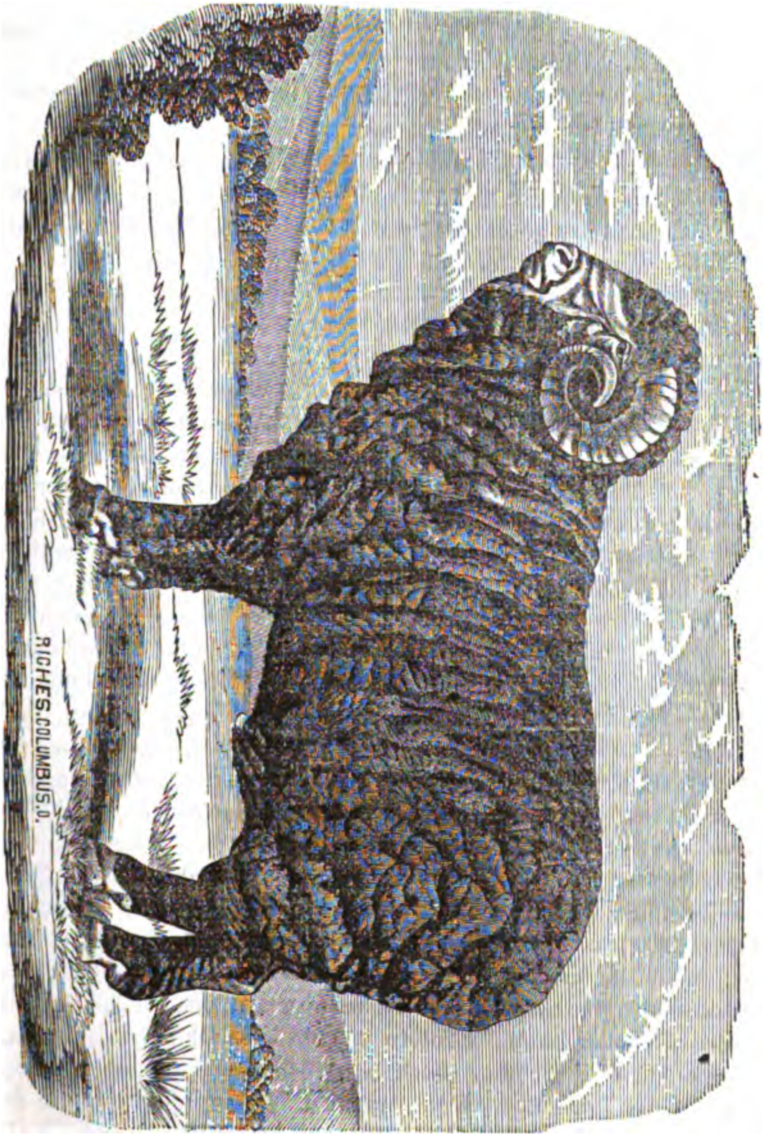


ELECTORAL BUCK.

In 1765 the first importations were made into Saxony from Spain, (see Ohio Agricultural Report for 1862, page 468,) but it was not until an improvement was manifest on the Saxony sheep, that importations were made into Austria. Maria Theresa, Empress of Austria, made several importations from the same cabannas, or original herds from which Saxons imported; but in Austria less attention was paid to quality of wool, and more to quantity, than in Saxony; hence the breeding in Austria took a different direction from that of Saxony.

The result of breeding the imported Spanish Merinos in Austria, was to produce a sheep with longer and coarser wool than that in Saxony. The yelk in the Austrian wool was characterized by being adhesive, tallowy, and in great quantity; thus the fleece, in many particulars, was precisely the opposite of that of Saxony. This type of Austrian improved sheep has passed under various names, but is now more generally known under the name of NEGRETTI, in Europe, than by any other.

The Negrettis are distinguished by their strongly built bodies, stout bones, and wide breast and back. The head is broad and rather short, the face blunt; the neck short, compact and strong; the body deep and barrel-shaped. The face is covered with wool, and not unfrequently the spaces occupied by the eyes, nose and mouth are the only ones free of wool; the short, thick ears are wooled at the base, and the short, stout-boned legs are covered with wool down to the hoofs, and even the belly is well covered with wool. The thick, coarsely organized skin is greatly disposed to form folds, or great wrinkles, which are sometimes very large around the necks and on the buttocks. All these folds produce a coarser


RICHES.COLUMBUS,O.

AUSTRIAN NEGRETTI.

wool. The wool is never so fine, even or soft as that of the Electorals; the wool itself is from 2½ to 3½ inches in length, the yelk seldom becoming liquid under 127° Fahrenheit—this tallowey quality of the yelk making the wool appear much harsher than it really is.*

[Note.—The engraving of this Austrian Negretti is a copy of the portrait of Mr. J. F. Hoffschläger's buck, "Edouard No. 124," and is of the stock the ewes of which divided the first premiums in the class of "quantity of wool," with George Campbell's ewes, at the Hamburg Exhibition in 1863.

All the improved sheep in Germany—except Rambouillet's—trace back in their pedigrees to one or the other of these types—to the Electorals or to the Negrettis.* By great attention to systematic and careful breeding, several types have been formed, as, for instance, those bred by Mr. Steiger, of Lentewitz, where large folds are found on the neck only—no perceptible folds being on the body or legs.

I was led to visit Mr. Steiger's estate on account of the sheep, because I had heard of it everywhere as being the most famous stock flock in all Saxony, if not in all Germany. The flock was founded in 1806, by the purchase of the most celebrated bucks and ewes from the stock flock of the Prince of Reuss, at Klipphausen; and the flock of the latter traces back to an importation from Spain of the most celebrated flocks there. The present flock at Leutewitz has been bred by itself for about sixty years, and has had no infusion or admixture of any other blood. Some of the bucks which I saw weighed, with one year's fleece on, one hundred and fifty pounds, and were almost as large as some of the Rambouillets I saw at Stettin. They were very finely built animals, and had splendidly compact heads. The wool was very fine, even, a capital crimp, and not overloaded with yelk. His men were shearing sheep when I arrived at the estate, and those shorn showed careful breeding, were in good condition, and well formed. The bucks' fleeces unwashed weighed from twelve to twenty pounds, and when washed, from six to ten pounds; the ewes' fleeces unwashed, seven to ten pounds, and when washed, four to six pounds. The wool is used in the manufacture of the finest cloths. The entire flock has folds around the neck, but not on the body; and yet Mr. Steiger insists on calling them "Electorals." This shows how arbitrary names are, for by Electoral *we* understand one without any folds whatever. He sells annually 200 to 250 bucks, and as many ewes, and keeps as a regular breeding flock about 400. The sheep are kept in stables, and are kept very clean and nice. Sometimes they are driven out to pasture in the care of shepherds, but in winter are housed all the time, and are fed one and one-half pound of hay, three to four pounds of straw, two pounds of mangolds, one-fourth pound of oats or other grain,

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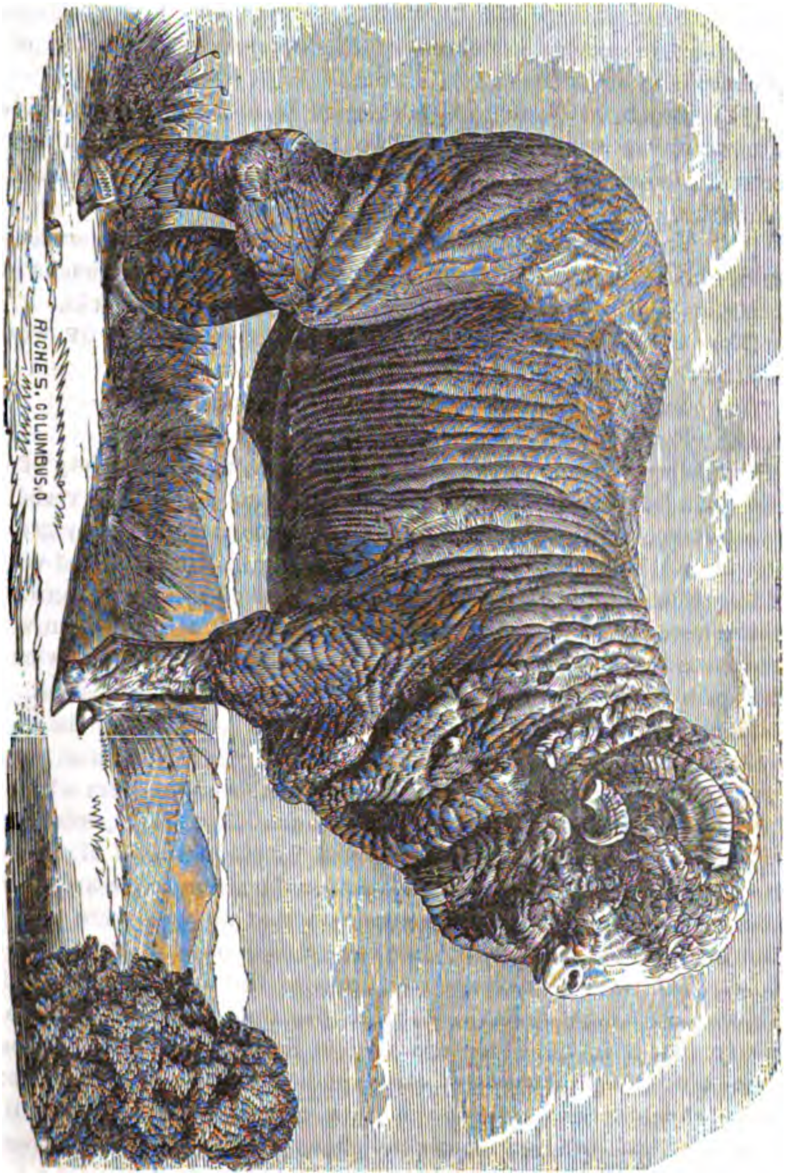
* A Körte, das Deutsche Merino Schaf, Breslau, 1862, page 259–60.

"chopped." The proprietor aimed to combine size of body with great product of wool and perfect form, and took especial pains to show me the classes of sheep which he afterwards exhibited at the Dresden Fair, viz:



H. A. STEIGER'S BUCK NO. 90, DROPPED IN 1863.

a, sheep for size of body and perfect form; *b*, sheep for size of body and quantity of wool; *c*, sheep for quantity and quality of wool; *d*, sheep combining large size of body, perfection of form, quantity and quality of wool.

At the international exhibition at Hamburg, in 1863, the fine wooled sheep were divided into the following classes:

(A.) Stock, *(Stamme)* in which especial regard is to be had with reference to QUALITY. ("Elde") Wolle. Bucks: Two first premiums of 50 thalers; two second premiums of 25 thalers. Ewes, in lots of three: premiums same as bucks.

(B.) Stock, in which especial regard is to be had with reference to QUANTITY OF WOOL. Bucks: Two first premiums of 50 thalers; two second premiums of 25 thalers. Ewes, in lots of three: premiums same as bucks.

(C.) Stock, in which especial regard is to be had with reference to PERFECTION OF FORM AND EASY KEEPING. Premiums on bucks same as preceding. Ewes, in lots of three: premiums same as bucks.

(D.) Stock, in which QUALITY OF WOOL, QUANTITY OF WOOL, and WEIGHT OF BODY are combined.

(a.) Bucks: Premiums same as preceding classes.

(b.) Ewes, in lots of three: premiums same as bucks.

Considerable controversy ensued in relation to the propriety of making the class D, *a* and *b*. This controversy was not confined to verbal discussions alone, but an exceedingly prolix published controversy grew out of it. Baron Hermann von Nathusius, a practical breeder and very scientific gentleman, opposed the formation of the classes, on the grounds that there were no physiological facts to warrant it; whilst Baron von Ompteda was in favor of the classes. The whole controversy grew out of Mr. Steiger's request to have the class D 113 formed and published.

In the course of his reply to the positions assumed by the respective gentlemen above named, Mr. Steiger says: "Mr. Nathusius states that the object of securing competition for those sheep breeders who endeavor to produce an animal combining several qualities, with special regard for any one quality, was not accomplished by the addition of class 113; it resulted in presenting an obscure, rather than a clear picture of the combination claimed. Now, it is admitted that animals were exhibited in this class which should have been exhibited in others; but this is equally true of all the other classes; at least, so the awarding juries decided. But this has nothing to do with the principle involved. Mr. Nathusius insists that those breeders who were of opinion that they possessed animals combining all three of these qualities in an equal degree of excellence, should be exhibited in the three classes, respectively, A, B and C. For one, I was willing to have my sheep entered in those classes, but I was not permitted to do so. I will cheerfully admit that if I had been permitted thus to enter them, that it would have been a difficult matter to have obtained a prize, because it is barely possible to develop all these qualities in a high degree in the same animal; but, whilst making this admission, I do not at the same time admit that every animal *must* excel in one quality to be entitled to a place at an exhibition, or to the claim of being profitable—conditions or terms upon which classes A, B and C are based. On the contrary, I maintain that in Merino breeding the largest profit may, in most cases, be realized by having regard to all three qualities; that these three qualities mutually assist each other in being developed to that degree which secures the greatest profit. The object in breeding as designated by class D, is not only a feasible, but a very important one. Any close observer of Merino breeders may be convinced of its practicability, and I will direct attention to those points only which, fully demonstrated, produce the result just stated.

"In the first place, I may be permitted to refer to the views hitherto entertained. For a long time a belief obtained, that a great quantity and fine quality of wool could not be found in combination, or on the same animal. Experience had demonstrated that the very finest flocks were the very lightest shearers; thus, when the finest wool no longer commanded remunerative prices, it was very natural that greater attention would be paid to breeds which produced heavier fleeces, even if the quality was inferior. As a transition from one extreme to the other frequently occurs, so also in this; and it was not long before it was believed that a heavy fleece could be obtained of coarse wool only. Accurate and more recent investigations have demonstrated this position to be incorrect. It was shown that fine wool has a greater specific gravity than coarse and "*ignoble*" wool. It was also found that a wool somewhat longer than the former short Saxony was deemed valuable, and in demand by the manufacturers. They learned that a soft, true, elastic wool, adhering firmly to the skin of the animal, although not superfine, had the same commercial value. It was also found that this wool could grow equally on almost all parts of the body, and that it adhered more firmly to the skin until shearing time, than the very finest, or than the rough and course wool; and finally, that the greatest weight of fleece was attainable with such wools. Thus, at last, a combination of these two qualities was thought possible; as to the *third*—form and great weight of body—very little importance was attached to it in Merino breeding. It was found that when quantity and quality were combined in one animal, that the development of the body often was deficient, and therefore it was believed that perfection of form and great weight of body were attainable only in mutton sheep, or the English breeds. It was thought, therefore, that one only, or at most *two* qualities might be combined and developed to a high degree of excellency in one sheep. But that two only of the qualities mentioned could be found in any one animal, and that the *third* must necessarily be wanting, is a belief no less founded on authority than the former opinions, and it may be influential in assigning the greatest value to the sheep possessing one or two qualities only.

"To prove the impossibility of combining all three qualities in one animal, reference ought to be made to the phenomenon which all know to be immutable, but instead of this, reference is made to the *effects* produced by every extreme breed. For example, reference is made to sheep having a thick skin and numerous folds or wrinkles, especially if the wool on the exposed portion of the folds is "noble,"* (which it never is *in* the wrinkles) producing heavy fleeces, (because the wool in the folds has a very large proportion of yelk;) but then they *never* are in good condition, and *never* have a large and heavy body.

"*Inference:* The nobler, and denser, and stronger (more yelky) the wool, the smaller the body.

"On the other hand, it is apparent that animals with *ignoble*, rough, loosely rooted wool, and the entire body of a porous texture, are good feeders, and acquire a considerable weight of body.

"*Inference:* In order to produce good and heavy bodies, the wool must be ignoble and coarse.

"But these inferences are refuted by facts which have been firmly established by accurate observation, in reference to the actual weight of wool, (not yelk and wool) and the good feeding qualities. First, I repeat that 'noble' wool weighs heavier than 'ignoble;' that it adheres more firmly to the skin of the animal, and the goods manufactured of it are more durable; that it has a greater commercial value; that such wool may grow equally on all parts of the body; that the greatest weight of fleece may be obtained with noble and valuable wool, but it is attainable only when such wool grows in equal density on all parts of the body of the sheep. But *another fact* is, that such sheep, with a thin, noble skin, noble wool, few wrinkles or folds, little yelk, and a broad body, will keep in *good* feeding condition, and may be brought to a considerable size and weight, because two superfluous and even noxious productions, requiring much fodder and impeding the development of the animal—*sweat* (yelk) and a thick skin—are avoided; the fodder not consumed in forming these, may form mutton and wool. From all these facts, it follows that it is possible to produce a Merino sheep yielding a considerable quantity of valuable wool, and possessing good feeding qualities, a fine form of body and a heavy carcass; that this is possible only when all three qualities are united and mutually operate on each other.

"The proper rearing of the young animals, the nutritive value of the various foods, the general keeping, etc., as Mr. Ompteda remarks, can no more be represented by figures, than the relative value of the individual productions under the various conditions and conjunctures; therefore I have not made an arithmetical calculation, although I might make one which would fully demonstrate the correctness of the principle involved in my system of breeding.

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* *Edle* in German; it signifies "noble," "precious," "excellent."

"In conclusion, I have yet one remark to make in relation to that which Mr. NATHUSIUS, in his reply to Mr. OMPTEDA, designates 'as an open question,' etc. I cannot indorse the views expressed by Mr. OMPTEDA in discussing the question, 'In breeding Merinos, why should not the body also form an object of itself, if it is not only attainable, but is also a condition for securing the other qualities in a higher degree?'

"It is only when the body is of a fine form and large, and the wool field is free from wrinkles and extended over a large surface, that the wool can be really noble and equal on the various parts. But to obtain a large profit the form and weight of the body are of such importance that they are almost a *sine qua non* for making Merino-breeding profitable. This refutes a principle which, perhaps, was the leading idea in the discussion of this question by Mr. OMPTEDA, viz.: that large profits might be realized from the wool alone even if the Merinos were kept on inferior forage or poor pasture. This idea is wholly erroneous, and is being now more and more abandoned. All domestic animals must be well fed and especially well bred and reared, otherwise the profits accurately calculated will always be smaller.

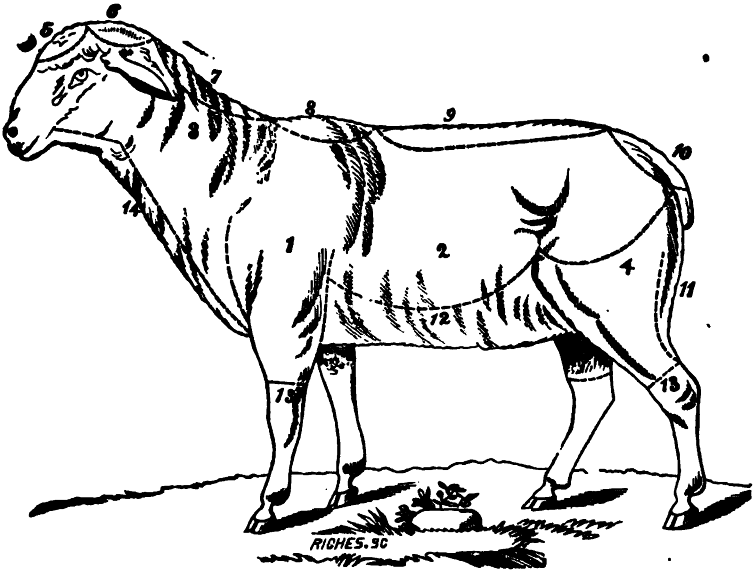
"H. A. STEIGER."

Mr. A. Körte of Oppeln, Silesia, and who with propriety may be regarded as the *Youatt* of Germany, so far as sheep are concerned, speaking of the present German flocks in general, says that those descended from the Electoral herds (like Steiger's) have retained the quality of wool, but have been improved in size and form, whilst those derived from the Negrettis have retained the form and size, but have been improved in the quality of the fleece. The present combing-wool Merinos of Germany, he regards as a "bastard race," and attributes the character of the fleece more to the influence of soil and climate, than to any specific system of breeding.

SORTING WOOL.

Knowing that the Germans paid a great deal of attention to quality of wool, I applied to a famous wool-sorter (assorter) to learn from him how a fleece was assorted or divided into qualities. The following is his description, viz.:

"This cut represents a well-grown old-fashioned *Electoral* when sheared, or rather such a sheep as produced the fine wool of Saxony, and which yields 70 per cent. of ELECTA or very fine wool, 20 per cent. of PRIMA, or fine wool, and 10 per cent. of SECUNDA, tags and locks. The shoulder marked No. 1 in the cut produces the finest wool on the entire body; when the wool is of the very finest quality, soft, short in staple, it is then called SUPER-ELECTA. The limits of this wool field varies in the individual sheep—in some larger, in others smaller—and by almost imperceptible gradations mingles with that grown in Nos. 2 and 3, so that it really has no strongly marked boundary.



"No. 2. The ribs and flank. The wool on this field varies very slightly in fineness from No. 1, but its boundary is more distinct as it borders on Nos. 9, 10, 4 and 12 than is the boundary between it and No. 1. The wool on this field is also classed as electa.

"No. 3. The wool on both sides of the neck is a shade coarser than on the flank.

"No. 4. The thigh or leg. The wool on this part is the test wool of the fleece. In the infantados and crosses, it is very frequently mixed with hairs. The quality of the wool is fully two whole degrees inferior to that on No. 1, and is graded as *prime* when No. 1 is super-electa, or it is graded as *secunda* when No. 1 is electa. These four fields constitute the greater portion of the fleece, and include all the best qualities on the sheep.

"No. 5. The forehead. Wool short, irregularly stapled, and is therefore classed as locks.

"No. 6. The head. The wool here is coarser and harsh; in bucks especially it is mixed with 'dog hairs;' the result of butting. In ewes it almost always is full of white hairs and is knotted; it is classed with the locks.

"No. 7. Neck—has coarser wool, abnormal staples, and is graded with locks.

"No. 8. Withers. This part has either a coarser wool, or if a fine wool it is called a 'yarn' wool. Often the spot is not larger than a dollar, but if it is not closely watched in breeding, in the course of several generations it spreads over considerable space. In selecting a breeding buck especial attention should be paid to the wool on this spot.

"No. 9. Back or loin. The wool here is coarser than No. 4, the staple shorter, crimp imperfect, the small locks 'tangled' and are whiter than on the other parts of the sheep. As it is the most exposed to the influences of rain and sunshine, it is seldom classed as secunda, and as a rule is graded with the locks.

"No. 10. Root of the tail. This is generally pretty coarse and is always classed as 'tags.'

"No. 11. Outer portion of the thigh. On every sheep this field produces the poorest wool—the strip is wider or narrower according to the purity of the breed; the wool is coarser, sharp and brittle. In improving the quality of the wool this place is the last to yield to the improvement.

"No. 12. Belly. Notwithstanding the wool is fine on this field, it is short, tangled and loose; more than all, on the lower portion it is more or less yellow, and where there is insufficient litter it is dyed brown from the urine, and is very mellow and tender. In manufacturing this wool is always kept separate from the locks and tags, because it will not take all the colors in dyeing, and those it does take are not always "*fast.*"

"No. 13. Shin or lower leg. Is always graded as tags.

"No. 14. Throat and breast. The wool not fine, loose staple, and therefore put among the locks. Even if the wool is fine at the roots the outer extremity is generally coarse, and at least harsh. Along the center of the throat, in the Infantados and their descendants, very often a lustrous streak of wool is found."

In a country as long settled as Europe, and where the relative value of industrial products do not fluctuate in price as in the United States, I thought it proper to ascertain the average prices obtained for the various grades or qualities of wool. A gentleman who has devoted a long life to the wool business gave me the following, as the average prices in the "World's" market:

1. MOHAIR; stands at the head of the list. It is that incomparably fine, silvery white and shining fleece of the Angora goat; the production and pride of Asia Minor; the demand for which has been constantly increasing during the past twenty years. The average price of it is $79.26 per hundred pounds.

2. Next in rank are the Saxony fine wools. These command the same

price as the mohair. Then follow the Austrian and Silesian merino wools, the average of which is $73.17 per hundred pounds. It is proper to mention here that the class of wools purchased by England in the Breslau market, are chiefly the long merino or combing merino, or better yet, the *de laine* wools. There are very few establishments in England that manufacture fine broadcloths. These delaine wools average about $65 per hundred weight.

3. Then follows the Spanish merino scoured wool. Its average price is $58.94 per hundred pounds, and it is from this wool that the greater proportion of cloths are made which are manufactured in England.

4. The Australian merino wool is next in order, chiefly from Port Phillip; this is a very fine wool, and has a very nice crimp. The average price is $53.65 per hundred pounds. Next in price is the finer scoured merino wool from Sydney, averaging $49 per hundred pounds; then follow the merinos of Victoria and other provinces. The Tasmanian merino wool (Van Dieman's Land), however, stands higher and ranges in price with the German de laine wools.

5. Next is the incomparably beautiful silky lustrous and soft alpacca wool, *i. e.* the fleece of the Llama or Alpacca—one of the most interesting animals of the present day. It is found in Thibet, but chiefly in South America, in large numbers. Its wool as it appears in market is of three different colors, viz., a lustrous intense black, white, and a reddish brown. It is a fine, long, combing fiber, and especially adapted for the manufacture of the soft and lustrous goods for ladies dresses. The average price is $48.78 per hundred pounds.

6. The factory-washed Russian merino wool from Odessa. This is a fine merino cloth wool; the staple is strong and somewhat harsh. The price is the same as that of alpacca.

7. The English Southdown, such as is produced by the fourth cross of a Southdown buck on a fine merino ewe. This wool, perfectly cleansed, commands an average of $44.71 per hundred pounds. This is considered the most useful wool in the English market; it is from this wool that the fine yarns are made which are exported in vast quantities from England.

8. The next in order is the merino wool from the La Plata, a fine wool, closely approximating the medium German wools—and therefore is generally used as a substitute for them in English manufactories. The price is $42.68 per hundred pounds.

9. Wools of the quality of the English Cheviots are next in order of price. This is a very important wool, and is manufactured into various useful fabrics—fine stocking yarns, ladies' dress goods—and is mixed with other wools in manufacturing army cloths and fine blankets. It sells at $38.10 per hundred pounds.

10. Russian metis wool, factory washed, is next in order—a very nice

combing wool of long staple, the merino character of which cannot be denied. Price $36.58.

11. Common Peruvian wool. A very nice and useful wool, which, like all wools from South America, demonstrate that during the centuries of Spanish rule, crosses with the Spanish Merinos have taken place. It is a fine, soft, whitish gray combing wool, interspersed with red stripes, and is used for the same purposes as No. 9. Price $32.52.

12. Icelandish wool; has an excellent lustre of a peculiar character, and differs very materially from any German wool, and is therefore very suitable for ladies' dress goods, and particularly for being mixed with silk and cotton. It sells at $31.50 per hundred pounds.

13. Wools from Cape of Good Hope, commonly called "*Cape wools.*" Nothwithstanding this is a merino wool and is susceptible of being manufactured into cloth, yet the filthy and very unsightly condition in which it comes to market greatly affects the price, which is $30.48 per hundred pounds only.

14. Persian and East Indian wools. These are of a fine brown color (some of the East Indian is white), long, soft, silky combing wool, and used exclusively in the manufacture of ladies' dress goods. As it appears in market, it is white, light yellow, and and brownish yellow; the light yellow being preferred. Price $28.95 per hundred pounds.

15. Danskoi, or Russian white wool, is a coarse hairy-like combing wool, yet very soft to the touch and of strong staple. It is often mixed with cheaper wools in the manufacture of fine fancy wares. Price $24.39 per hundred pounds.

16. White Lima wool. Very unequal in the fleece, yet a strong, soft and long combing wool of the merino character. Price $23.37 per hundred pounds.

17. Black Lima wool, is used for the same purpose as the Peruvian wool, and is very suitable for stocking yarn. A singular peculiarity of this wool is, that it cannot be dyed any other color. Price $21.34 per hundred pounds.

18. The Chinese wool sells at the same price as the preceding. It is a very remarkable wool, having a very soft, smooth, whitish or light-yellow fiber; some locks resembling pure silk. It is used for army cloths.

19. Turkish wool sells at about 60 cents per hundred pounds less than No. 17; it is a soft wool, and reaches market in an unassorted condition, and is made up of white, brown and black wools, and is manufactured into various cheap goods.

20. Danskoi, or Russian gray wool, is a mixture of black, brown and whitish gray coarse wools; mixed with other wools in blankets and army cloths. Price $20.32 per hundred pounds.

21. Spanish unwashed black wool, is a native of the Pyrennean penin-

sula, is an interesting production; it is evidently of the merino character, and is remarkable for its intensely black color. It is used for stocking yarn. Price same as No. 20.

22. African unwashed wool from Northern Africa—chiefly Algiers; and

23. Valparaiso wool from the western portion of South America; and lastly,

24. Russian camels' hair, each command the same price. They are very ordinary, rather hairs than wool fibers, and are used exclusively for carpets. Price $16.56. per hundred pounds.

CHAPTER VI.

WURTEMBURG.

Leaving Dresden, I spent several days at Leipzig—saw the monument and statue of Thaer, the eminent German agricultural writer, visited the monument and statue erected to the memory of Hahnemann, the founder of the homœopathic system of medicine, rambled over Napoleon's battle fields, visited the parks, gardens, churches, etc., and saw the room which is immortalized in Gœthe's "Faust." I arrived at Leipzig on Saturday evening, and as the following Monday and Tuesday were holidays, the city was full of church-going people. The churches, both Catholic and Protestant, were crowded, and to me apparently vieing with each other in grandeur of ceremonies. Our consul being absent, and parties to whom I had letters of introduction *not at home*, on Wednesday morning I proceeded to Magdeburg *via* Halle, both of which places are famous for the parts played by them during the life of Luther and in the Reformation.

The railway from Dresden to Leipzig, for the first half of the way, passes through a granitic, then silurian and porphyritic formation: the last half is wealden and quarternary. From Leipzig to Halle, along the banks of the Elster, the formation is purely quarternary (modern or recent.) From Halle to Magdeburg it passes successively through wealden, variegated sandstone, permian, and muschelkalk. From Magdeburg to Brunswick the formation is lias, wealden and trias. These are deposits along the base of the Hartz mountains. The latter consist of granite and uplifted devonian and silurian formations. Sweeping around on the north and west sides of the Hartz, from Brunswick through the southern portion of Hanover down to Hesse Cassel, the soil appears to be of very indifferent character, indeed—a stiff heavy clay, abounding in lime, and making successful agriculture very difficult. From Göttingen to Heidelberg the railway passes through a variegated sandstone formation, here and there interspersed with wealden, muschelkalk and basalt. From

Heidelberg to Stuttgard the formation is keuper and muschelkalk, but at the latter place we find a vast lias formation.

The journey from Magdeburg (see page 133) to Stuttgard was made as rapidly as possible, because there was nothing of special agricultural interest between these points.

After arriving at Stuttgard, of course the first object of interest, so far as my mission was concerned, was to visit the great agricultural college at Hohenheim. This I did in company with my family and consul Klauprecht—(See pages 12 to 21 inclusive, in part II. of this report, for a statement in relation to this college.)

KINGDOM OF WURTEMBURG.

The kingdom of Wurtemburg is situated between 47½° and 49½° north latitude, and 8½° and 10½° east longitude, and embraces an area equal in extent to about one fifth of the State of Ohio. The geologic formation is granite, gneiss and new red sandstone in the Black Forest (schwarzwald) in the southwest, upper jurassic* in the Swabian Alps, in the south and southeast, and keuper and muschelkalk in the remainder. The northern portion of these Alps is a lias formation, and is succeeded by the keuper, and this last by the muschelkalk. This last formation extends almost uninterruptedly to Saxe Coburg Gotha.

The surface of Wurtemburg is exceedingly *broken* or irregular. Points in the Black Forest, such as Feldberg, rise to a height of 4,650 feet† above the level of the ocean. The highest *plateau* is 3,550 feet, the lowest valley is 420 feet, and the *mean* height of the kingdom is 1,500 feet. The positions and extent of the elevations exercise a great influence on the climatology of the country. Cannstadt, near Stuttgard, having an elevation of 668 feet, has a mean annual temperature of 49° Fahr. The mean spring temperature is 48°, the summer 65°, the autumn 49°, and the winter 32½.

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* The geologic terms used here are those I first learned in Lyell's "Elements of Geology," and yet prefer them to the more recent nomenclature of other writers. They are synonomous with—

Lyell.	Other writers.		
New Red Sandstone.	Lower Trias.		
Muschelkalk.	Middle Trias.	New red marls.	Triasic group.
Keuper.	Upper Trias.		Salines.
Lias.	Lower or Black Jura.		Marl.
Dogger.	Middle or Brown Jura.		Lower Oolite.
Upper Jura.	Upper and Middle Oolite.		Portland, Kimmeridge and Oxford Clays.
Eocene.	London Clay.		
Miocene and Pliocene.	Crag.		

† The Wurtemburg foot is 11¼ inches.

Schopfloch, in Kircheim, having an elevation of 2,360 feet, has a mean annual temperature of 44° F., a spring temperature of 42.8°, a summer of 60.8°, an autumn of 46°, and a winter of 30°.

	Average number of			
	Hot days.	Duration of ice.	Snowy days.	Rainy days.
Cannstadt	46.6	82.3	31.5	154.7
Schopfloch	12.1	107.5	48.3	123.8

	Annual rainfall in Paris inches.*	Average No. of days between—	
		Spring and Autumn snows.	Spring and Autumn frosts.
Cannstadt	25.5	228.5	190.1
Schopfloch	37.9	183.5	168.8

During the past thirty-five years the thermometer at Stuttgard has had a mean annual range between the maximum, 91.4°, and the minimum, 1.4°, or a range of 90° Fahr. The west winds bring moist and cool summers, and mild winters, but the east winds bring dry and hot summers—wine season—and cold winters.

The inhabitants of Wurtemburg represent quite a number of tribes or races. About a million and a half trace back to the Swabians, others to the Alemani, Franks, Styrians, Swedes and Jews, and after the revocation of the edict of Nantes, some 3,000 Huguenots and Waldensees settled in Wurtemburg.

The population in 1861 was 1,720,708, or 12,555 *less* than in 1852. Of the population in 1861, there were—

Males.	Females.	Under 14 years of age.	Over 14 years of age.	Protestant.	Catholic.	Jews.
830,192	890,516	495,890	1,224,818	1,179,814	527,057	11,338

Of the male population, 243,254 were under 14 and 586,964 were over 14 years of age. Of those under 14 years, 135,000 boys were attending the public schools. The 587,000 males over 14 years of age may be classified as follows:

			Per cent of male population.
1.	Landowners engaged in agriculture	142,000	24.2
2.	Dependent assistants "	125,000	21.3
3.	Agricultural day laborers	48,000	8.17
4.	Mechanics owning their establishments	105,000	17.9
5.	Assistant mechanics (journeymen, etc.)	120,000	20.4
6.	House servants	5,000	0.85
7.	In public service (including Church and State)	17,500	2.98
8.	Military	9,000	1.5
9.	Arts and sciences (including physicians, engineers, artists, etc)	1,500	0.25
10.	Students in colleges and universities	2,000	0.34
11.	Retired, living on incomes, etc	4,000	0.68
12.	Criminals, lunatics, hospitals, etc	8,000	1.36

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* The Paris foot is 12.79 inches.

Of the female portion of the population of this kingdom, 252,636 are under 14 years of age, of which 138,000 are attendants at public schools. Of the 637,880 females over 14 years of age, 267,159 are living with husbands, 63,168 are widows, 1,462 are divorced, leaving 306,091 unmarried. Of the unmarried ones, 72,000 may be estimated as engaged in agricultural operations and collateral avocations, 5,600 as house servants, 20,000 as day laborers in skilled industrial branches, 13,000 in manufactories, and 195,000 independent or living with parents, without any special avocation.

It will be seen from the above statement that more than 50 per cent. of the male population are directly engaged in agriculture.

In those European countries where every male subject owes military duty to the state, and where the "homestead" remains for many successive generations in the same family; where every one, male or female, not of the Jewish race, is *obliged* to have their birth, baptism and confirmation registered in either some Protestant or Catholic church—many details of statistics are more readily obtained than in the United States, where we have no such compulsory requirements. Throughout all Germany the births are in the proportion of 34 to every 1,000 of the inhabitants, or one birth to every 29½ inhabitants; or omitting those still-born, then there is one birth to every 30½ inhabitants. In France the births of live children are 26 to every 1,000 inhabitants, in Belgium 29, in England 33, in Bavaria 34, in Prussia 37, in Austria 38, and in Wurtemburg 40, or one birth to every twenty-five of the entire population of this kingdom. During the decennial period from 1846 to 1856, there were born in Wurtemburg 336,755 boys and 316,779 girls. Of these there were 8,258 births of twins, 78 of triplets, and 7 of quartlets. Artificial means were required once only in every 33,902 births; 2,539 mothers died in childbed; 26,638 children were still-born; and in every 10,000 births 343 were premature. From 1812 to 1852, there were nine births of legitimate children for *one* illegitimate; from 1853 to 1862, there were five legitimate to *one* illegitimate. But in the district of Welzheim, in 1861, there were 37 illegitimate births for every 100 legitimate ones; and Dr. Rümelin, of Stuttgard, in his statistical contributions, says that in some districts there is one illegitimate for every legitimate birth! *

From 1812 to 1862 the deaths in Wurtemburg were one to every 31½ of the population. The last decennial statements present the following summary: In the Scandinavian countries, one death in every 48.7 of of the population; in France, one in 41.7; England, 41.5; Hannover, 40.9; Belgium, 40; Holland, 36.2; Bavaria, 34.6; Saxony, 34.1; Prussia, 33.8; Austria, 29.7. Thus, with the exception of Austria, Wurtemburg has the greatest mortality of any European state. From July, 1846, to July,

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* Laud, Volk und Staat Wurtemburg, 1863, page 323.

1856, there were 543,087 deaths in Wurtemburg; of these, 26,169 or 4.82 per cent. were still-born; 218,035, or 40.1 per cent., were children under one year of age; 52,653, or 9.7 per cent., children between two and seven years. Omitting the still-born, 42.18 per cent. of the children die before they are one year old. This great mortality is attributed to the chilling atmosphere of the great elevations, insufficient clothing and care, and, on the southern slope of the Swabian Alps and the Danubian regions, to the fact that the mothers never suckle the children, but from birth are fed on artificial food; the consequence is, that the tables of mortality show that 52 per cent. of the children born alive die before attaining their first year. Of 10,000 persons, it was found that there were in

	Under 13 years old.	Between 14 and 59.	Over 60 years.
Wurtemburg	2,952	6,270	778
France	2,386	6,532	1,083

During the five years from 1853 to 1858, the military conscription brought out 80,020 young men subject to military service; of these 4,455, or 5.56 per cent., were under five feet two inches high. Of this entire number of conscripts, 40,688, or more than 50 per cent., were rejected as having defective organizations and unfit for military duty.

LAND, ETC.

Wurtemburg contains an area of 6,188,252 morgens[*] of land, or 4,821,748 acres, or about *one-fifth* of the area of the State of Ohio. This area is divided for agricultural purposes as follows:

Arable lands[†]	2,628,337	morgens.
Meadow[‡]	881,607	"
Gardens	121,504	"
Vineyards	82,921	"
Forests	1,919,311	"
Pastures	266,931	"
Highways	135,541	"
Buildings	28,000	"
Quarries	84,000	"
Streams, etc	40,000	"
Total	6,188,252	"

This gives an average of 3.6 morgens, or 2 4-5 acres, to every inhabitant. The live stock statistics show:

	Under 8 years old.	Over 8 years old.	Total.	Horses to every 100 inhabit's.
Horses	16,285	78,711	95,996	5.6

	Young Cattle and Calves.	Oxen and Steers.	Cows and heifers.	Total.	To every 100 inhab'nts.
Cattle	338,229	152,185	466,758	957,172	55.6

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[*] The Wurtemburg morgen is 0.779 of an acre.

[†] 366,826 morgens lie fallow annually.

[‡] 227,916 morgens are cut once a year, and 653,691 are cut twice a year.

	Merino.	Mixed Blood.	Natives.	Total.
Sheep	70,685	520,284	92,873	683,842
Swine				216,965
Goats				43,714
Colonies of Bees				104,583

About one seventy-fifth of the entire area is now devoted to vineyards. The same relative proportion of vineyards in Ohio would make 350,000 acres, or a little more than one averaged sized county, entirely in grape vines.

Historians mention the culture of the vine, and the excellent quality of the wine made in Wurtemburg, as early as the first century of the present era. The Wurtemburgians have records showing the production of wine since the ninth century, or the time of Charlemagne; but they have annual records since the fourteenth century. These records show conclusively that in every ten years there are—

One extraordinary
Three good
Three medium
Three bad
} Wine years.

In the thirteenth century the eimer[*] of wine sold at 40 cents; in 1426 it was so abundant that it sold at 12 cents per eimer; but at the commencement of the present century it readily commanded $15.50 per eimer. During the thirty years' war, 40,195 acres of vineyard were totally destroyed, and almost as much more was destroyed during the French invasion, toward the close of the seventeenth century. The vintners were poor, and became discouraged; the demand for the Swabian wines declined very much, and for the space of nearly one hundred years little or nothing was done in grape culture in the kingdom. The culture was somewhat revived toward the close of the eighteenth and the commencement of the nineteenth centuries, but the vintners paid more attention to the quantity they could produce than the quality of the wine. Wine growers' associations were formed throughout the kingdom, and since 1824 they have distributed over seventeen millions of cuttings of improved or superior grapes, which they imported from nearly all parts of Europe. Among these were the Blue Clevener, Burgundy, White Riesling, Red Traminer, Krachgutedel, White Burgundy, and Blue Sylvania.

I learned here that the character of the soil affects the altitude at which grapes may successfully be grown; as, for instance, in the Kocherthal and Iagsthal, two valleys in close proximity to each other, or rather the one running into the other. The Kocherthal is of the keuper formation, and grapes succeed at an elevation of 1,400 feet; the Iagsthal is of the muschelkalk formation, but the grapes do not do well higher than 1,061 feet. This is not an isolated case, for in the Enz valley the one side is muschelkalk, and the other is kueper; the grape does not succeed on the former at a greater altitude than 1,100 feet, whilst they flourish on the latter at an altitude of 1,500 feet. On the *molasse* formation and sandy clay drift, in the vicinity of Lake Constance, vineyards flourish at an elevation of 1,800 feet.

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[*] EIMER of wine, Augsburg measure, 19.9 gallons. Eimer *schenkmass* Wurtemburg, 70.6 galls. Eimer *hell-eich-mass* Wurtemburg, 77.6 galls. Eimer *wine on lees* Wurtemburg, 81 galls.—*J. H. Alexander's Dict. of Weights and Measures.*

EIMER of Wurtemburg, 64.7 gallons.—*Woolhouse's Weights and Measures of all Nations.*

The most widely disseminated and extensively cultivated grape is the "*Elbling*," then follow in order the Sylvanian, Trollinger, Grübler, Gutedel, Affenthaler, Velteliner, Riessling, Fütterer, Muscatelle, Clevener, Burgundian, and Tokayer.

In places where the lias, limestone or marl formations forms the subsoil, or where the soil is derived from the decomposition of these formations, the soil is a cold, tough, limey clay; but where the clay slate formation forms the subsoil, and the soil is a rich clay, there the most productive vineyards are found. Mr. DORNFELD—a gentleman in Stuttgard—who has given this subject special attention, says that in the last-mentioned situations, the *morgen* frequently produces from 20 to 25 eimers of wine. This of course depends upon the number of vines; in the most densely planted vineyards the vines are planted 2 feet by 2½ from each other. So far as I observed the vines are tied to a single stake from 5 to 7 or 8 feet high; I did not observe any on trellisses, although I was told that some were trained in that way. The vines must be renewed from time to time, and in consequence of so many new vines taking place of the old ones, there is seldom over 60,000 *morgens* in bearing as an average for a series of years. The following table shows the average product of wine in Wurtemburg during the 36 years from 1827 to 1862:

Morgen in vines.	Yield in eimers.	Average per morgen in eimers.	Average price per eimer.	Average value of the crop.	Average per morgen.
59,843	140,743	2⅜	$10.92	$1,500,117.20	$25.08

During this period the *molasse* formation near the Lake of Constance produced an annual average of 4½ eimers per morgen, or an increase of $44.58 per morgen; whilst in the Tauberthal, a muschelkalk formation, ranging from 676 to 1,300 feet altitude, averaged 1⅜ eimers, or $13.39 per morgen.

The years of the greatest yield were—	1828	yielded	315,205	eimers.
	1835	"	330,449	"
	1834	"	286,002	"
	1848	"	246,168	"
	1857	"	214,476	"
The lowest yield in	1851	"	41,094	"

The largest sum of money for any crop was that of 1834, which was sold for $3,873,688. From 1827 to 1836 the price of an eimer was $8.73, but from 1857 to 1862 it averaged $16.51; but choice wines readily command $30.12 per eimer.

As a rule the vineyards are located on hill sides which are too steep for the ordinary farm crops; the vines are planted about 2½ by 3 feet apart. Often the entire hill side is in terraces, one above the other, separated by a stone wall of "rubble" work. The soil is changed every three or four years in the following manner: The soil is removed from the lower terrace, and the "ditch" thus formed is filled by the soil from the terrace above, and so on until the last or upper terrace is reached. When the vines are 15 to 20 years old they are layered their entire length, and the one-year old wood left sticking out to form a new vine. This method is preferred to that of putting down cuttings. As I was there in June and not during the wine season I cannot present many details of the manufacture of wine; but so far as the vines are concerned they are "cut back" and trimmed much closer than we would dare to do here. The vineyards very seldom consist of a single variety of grapes, but much more generally three or four varieties are grown in the same tract.

On the steep sunny slopes, like those of the lower Neckar and Enz valleys, having the preponderating lime of the muschelkalk formation, the varieties of grapes grown are the luxuriant or rapid growing and late ripening, viz., the Blue Trollinger, Blue Grübler, mixed with the White and the Red Elbling; from these a heavy red wine is manufactured. In the lateral valleys where there is less sun, less powerful or strong soil, and altogether more mild, as in the upper Neckar valley, the early ripening varieties, such as the White Sylvanian, the White and the Red Elbling, the Blue Affenthaler, mixed with a few Trollingers, and in some special localities in the upper portion of the valley, the Blue Clevener, Blue Burgundy, and the early Blue Portuguese are grown. The wine made here is mostly a white wine, or a very pale claret when the blue grapes are mixed with the others.

Where the lands are less steep, of the keuper formation, but yet with a strong clay soil, the majority of the grapes are of the following varieties, viz.: White Elbling and White Sylvanian, mixed with the Blue Trollinger, and a very small proportion of White Fütterer and Gutedel;* here and there a White Tokay and Black Urban; in special localities we find mixed with the first named, the White Riessling, Red Traminer, Blue Clevener and Burgundy, and the Blue Müller. These grapes as a rule make a heavy claret; yet in some of the localities, as in the Rens valley, capital white wines are made, where the blue grapes are not mixed with the others.

In the lower muschelkalk formations, where there is a mild, if not an

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Literally translated means "*good-noble.*"

absolutely poor clay soil, as in the Kocher Jagst and Tauber valleys, the following varieties do the best—that is, these varieties of grapes do better here than any other varieties do—viz.: White Sylvanian (Austrian), White and Red Gutedel (Junker), Velteliner (flesh grape), the White Elbling (crystal), the White Muscatelle, with here and there a Trollinger. The bulk of the wines made of these grapes are a white wine. The bulk of the red wines are made in special localities, and the grapes used are generally the "blue sweet red" and the "*blue coarse black.*"

On the more gradual slopes, or in fact elevated table lands in the mountainous region of Lake Constance, where there is a strong clay mixed with disintegrated rock, the varieties of grapes are limited to three sorts or kinds only, viz., the White Elbling (Thick Elbling), the Whie Räuschling (Thin Elbling), and the Blue Burgundy. These make a very pale reddish wine, which is somewhat harsh and acid, but requires considerable age, when it becomes a really fine wine.

Vineyards on the muschelkalk and lias formations are kept renewed so that the grape growing is uninterrupted; but on the keuper formation they find it more profitable to cut away the old vines and grow forage plants for four or five years—generally it is sown down in what is called "blue clover," and the last crop plowed under.

There are in general cultivation 44 red and white varieties of grapes; 41 blue and black, and 26 varieties of table grapes. Among this latter class I was a little surprised to find our "*Isabella.*" The "Swabians" say "it does not amount to anything" as a wine grape—is too rank a grower, bears too little fruit, and what it does bear is not juicy enough, etc., etc. They class it as a third-rate table grape.

In Wurtemburg more attention is paid to fruit than in any other German State I visited. Relatively much less fruit is consumed there than in Ohio. The apples are either dried and exported, or else made into cider, and much of that exported. Peaches as a general thing are dried and shipped out of the kingdom. Prunes and cherries are grown to a large extent, so also are apricots and pears. The income derived from fruits during the last 20 years has averaged $1,800,000.*

The land in Wurtemburg is divided into very small parcels, so that no complete system of agriculture can be practiced by the farmers generally. By a complete system, I mean a system which includes growing live stock as well as farm crops. When we consider that in Ohio we have relatively about six times as many horses, fully as many, if not more, cattle, nine times as many sheep, and a *hundred fold* as many labor-saving agricultural machines and implements, no one will be surprised to learn that their agriculture is conducted on a gardening system rather than otherwise.

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* I state this on the authority of DORNFELD, a member of the Statistical Bureau of Wurtemburg.

There are in the kingdom about 2 4-5 acres to every inhabitant, but it must be remembered that this includes the forests (the forests occupy nearly one-third of the kingdom), streams, highways, royal estates, parks, etc., so that there really is barely an acre and a half to each individual. By practicing frugality in everything, and enforcing that rigid economy which a German only can do, combined with an untiring industry and ceaseless energy, sufficient food is produced for "both man and beast."

The late king of Wurtemburg did much to ameliorate the condition of the farmers of the kingdom. He appears to have been a man who did nothing hastily, and took pains to be well informed on every subject or project before he endeavored to put it into execution. He removed some of the restrictions on emigration; allowed greater freedom in industrial pursuits than many of the other States allowed; established the Agricultural College at Hohenheim, so that the cultivators of the soil might have all the advantages which science could afford them. On his own estates he established horse and cattle breeding establishments.

As early as 1585 there was a royal stud at Marbach, in Wurtemburg, under the reign of the Grand Duke Ludwig, the stallions in which were imported from Barbary, Naples and Spain. A century later the Grand Duke Frederick Charles added 79 stallions, which were purchased chiefly in Northern Germany. The late king having been one of the best horsemen in the kingdom, and having thoroughly tested the oriental blood on the battle-field and in the army, determined to establish a stud of oriental stallions and mares as soon as he attained the throne. He made many importations of Arabian horses, of several strains, among them a number of Nubian and Berber (or barbs) horses and mares. Importations were also made of English half thorough-bred mares, which were bred to these Arabian stallions; some half blood Irish mares and some of the heavy Yorkshire mares were also imported. I was furnished with a complete history of the present stud; with a history and pedigree of all the Arab stallions and mares, and saw many of the crosses of these Arab sires on English and other mares. In the system of breeding in this establishment many important physiological facts, or rather *laws*, were developed, but which would require entirely too much space to record here. I may state, however, that in an attempt to preserve the family of EMIR, an imported Arabian, it was found necessary to resort to in-and-in breeding to a very close degree, or what in the human family would be called incestuous. The result was that diminitive and feeble colts were produced, and the strain or family could not be maintained. The result of some of the crosses were by no means satisfactory, whilst in others the results were all that could be desired.

The stud is distributed on three estates—Klein Hohenheim, Scharnhausen and Weil. At Weil there are 123 head, as follows, viz: 69 brood mares (31 of these thorough-bred Arabians), 13 four year old mares, 21 sucking stallion colts, and 20 sucking fillies. At Scharnhausen there are 114 head, as follows: 20 brood mares, 21 three year old colts, 28 two year olds, 32 yearlings, and 13 sucking colts. Of the above 51 are thorough-bred Arabians and 43 are half bloods. At Klein Hohenheim 93 head, as follows: 11 four year olds, 31 three year olds, 28 two year olds, and 23 yearlings. Of these 37 are thorough Arabian and 56 half bloods. Of the 102 brood mares 51 are thorough-bred Arabian, or *saddle* horses, and 51 are half bloods, or *carriage* horses. Of these mares eight were imported from Arabia, viz: SAKLAVIA, of the *Saklavi Djedran* tribe, SAIDA, RAMDY, of the *Hamdani Rubdan* tribe, NEDJDI, of the *Koheil* tribe, JARIFFA, of *Anazee Saaba* tribe, DACHMA, of the *Dachman el Chahonan* tribe, DOUEBA, of the *Saklavi Djedran* tribe, MOREGHIA, of the *Saklavi Moreghia* tribe.

Of the stallions kept for service *six* are thorough-bred Arabians, viz: BOURNON, dapple gray, with dark mane and tail, 17 years old, 15½ hands high, of the tribe of Amurath; he is remarkable for transmitting his qualities to his colts. TAJAR, a chestnut brown, 15 years old, 15 hands 2½ inches high, also of the Amurath tribe. He is the get of two dapple grays, but transmits his own color with great certainty. AMURATH I., a dark dapple gray, 11 years old, 15 hands 2½ inches high, full brother to *Tajar*; transmits his qualities in a remarkable degree; is not quite so *leggy* as *Tajar*. SAID, 19 years old, 14 hands 3 inches high; a splendid dark brown animal. This stallion was sent as a present to Prince Albert, of England, by Iman, Bey of Muscat, and in 1857 was purchased by the King of Wurtemburg. The hind and fore legs are not as well formed as in some others. SOLIMAN, a light dapple gray, 13 years old, 15 hands 2 inches high; was bred by the Vice Royal of Egypt near Cairo; has stout short legs, and slightly sway backed. GADIR, a light grey, 18 years old, 15 hands and one inch high; is of the Saklavi Djeran tribe, and is a genuine Nedjid-Hedjaz, and was the favorite stallion of Abbas Pascha. There are three "half blood," or carriage stallions, viz: HAMAN, an Anglo-Arabian, dapple gray, 11 years old, 17 hands one inch high, and traces back to Moga of Derwisch. CONGO, a jet black, 20 years old, 17 hands high, a thorough-bred "TRAKEHNER." BLACK, a black stallion, with white hind feet, 13 years old, 16 hands and 3 inches high; had a thorough-bred Trakehner sire, and dam half thorough-bred English mare. Then there are three stallions of heavy strain, for the service of farm mares. These last named stallions are about one-fourth to three-eighth Arab blood, and the remainder Mecklenberg, Norfolk, or Trakehner.

During the past 15 years an annual average of 7,455 mares were served by the stallions in the royal stud, and an annual average of 4,000 colts produced.

There is an annual sale of four year old stallions and mares at the royal stud. The sale had taken place a short time before I visited there. Geldings sold for 500 to 600 florins ($200 to $240); stallions sold from

1200 to 1500 florins ($480 to $600); and mares from 400 to 1200 florins ($160 to $480). Thorough-bred Trakehner mares sold at 1600 gulden ($640).

Whilst I was interested in every department of productive industry of the Old World, yet having learned that the King of Wurtemburg had produced a new race of cattle, by crossing a number of varieties and breeding them until a fixity of type was produced, I devoted some time to visiting and inspecting the cattle and obtaining all possible information on the subject.

CATTLE ON KING OF WURTEMBURG'S ESTATES.

The last King of Wurtemburg has done a very great deal towards improving the domestic animals of the kingdom. Formerly, the king had a herd of cattle on each of his estates at SHARNHAUSEN, KLEINHOHENHEIM and WEIL, but in 1848, they were withdrawn from the first two, and are now mainly at WEIL and ROSENSTEIN. On the first of January, 1861, the cattle at Weil consisted of the following, viz:

WORK OXEN.

Fully matured and broke to the yoke	10 head.
Young, and up to three years old	16 "
Total	26 "

BREEDING CATTLE.

Cows	31 "
Heifers, over one year old	13 "
Bulls	3 "
Bulls over one year old	3 "
Bull calves under one year old	4 "
Cows " " "	16 "
Total	96 "

Three bulls are more than are really required for breeding purposes in the herd, but, as those living in the vicinity are permitted to have their cows served by these bulls, except only during such time as any contagious disease may be in existence among the neighborhood cattle, there are, therefore, as many bulls kept as the exigency of the times may require.

RACES OF CATTLE AT WEIL.

On this estate there are two races of cattle, viz:

I. The large Holland race with shorthorns, the greater portion of which are black and white, large spotted; or else a mouse blue and white spotted.

II. A race of cattle originally from the Swiss Canton of Appenzell, the so-called "*canvassed*" cattle—because the head, neck, fore-legs and shoulders up to the withers are black; then a broad band of white extending from the withers until almost to the hips, covering the sides of the barrel, then the remainder of the hinder part of the body, and legs are black. I remember, distinctly, that I inquired of the herdsman, when going into the stables at Weil, why he had a white covering on all the cows in June. He smiled and said may it please your *Lordship*, these are the *Gurtenvish* (canvassed) and have been regularly bred here since 1814. Of the thirty-one cows, twenty-one were of the Holland race, and ten of the Appenzell. The register shows the live weight of a six year old Holland cow in good condition to be an average of 1,150 pounds (English), whilst an Appenzell cow of the same age and condition weighs about 1,200. Since the introduction of the Hollanders they have gradually lost in weight, while the Appenzell have increased.

The milking qualities being one of the *desiderata*, not only with the king, but the entire community around about Stuttgardt, and as the North Holland and Friesland cattle were reputed to be the best of milkers they were selected, and a strict account of their yield of milk was daily registered. It soon was apparent that no other race of cattle yielded the *quantity* of milk per head that these did. When a comparison was made, in which the amount of food consumed was taken into consideration with the yield of milk, it was found that the Schwytz (not Swiss) yielded a slightly greater *relative* proportion of milk.

But then the North Holland races were desirable for the large calves which they dropped, and the early maturity of these calves. During the period they were in milk, the cows appeared to be in very poor condition, but they fatted very rapidly when dry; so, also, were the oxen very readily fattened. They, however, always required an ample supply of food, but were by no means choice as to the quality of the food, and as they readily crossed with the natives, they were selected as one of the permanent races to be retained on the estate at Weil. The first purchase was made in 1821, and consisted of two bulls, and eighteen females; the second purchase was made in 1829, and consisted of two bulls and sixteen females.

The race next in quality to be retained was the Schwytzer, and after these the "canvass" or Appenzell, both of which had for a series of years been at Klein Hohenheim, as experimental herds, and had yielded a larger quantity of milk per head than those of any other race there. The milk of these latter two races are richer in butter and cheese than the Hollanders, whilst at the same time both races take on fat equally readily. The Appenzell had another decided advantage over the Hollanders, namely:

the oxen were hardier and brisker, in all their movements—hence, the Apppenzellers were also retained at Weil.

Why the large breeds of cattle were preferred to the small ones.—The experiments with cattle, instituted by the King of Wurtemburg, seems to have been mainly with the view of determining which were the most desirable races to retain—all things considered. It was found in course of time that several of the small breeds yielded almost as much milk, in proportion to the amount of food consumed, as the Hollanders; for instance, the *Hallo Limburg*, one of the native breeds, yielded fifty pounds of milk to every one hundred pounds equivalent of hay consumed, —which is almost equal to the Hollanders, and at the same time this native race produces very excellent and heavy oxen, although the cows are very small. If the experiments had been instituted to determine the milking qualities only, there is no doubt that the small breed from the Canton of Uri, in Switzerland, would have been retained in preference to the others, because for one hundred pounds equivalent of hay consumed they yielded fifty-four pounds of milk. And then this small breed would have commended itself to many of the small farmers and poorer classes, who could not well afford the amount of food and stabling for the large ones; but in comparing them with the large breeds it was found not desirable to retain them for the following reasons:

1. The large breeds were more profitable for the shambles than the small ones.
2. The calves of the large breeds were heavier, and matured more rapidly than those of the small breeds.
3. That in proportion to the amount of food consumed the large breeds require less care and personal service than the small breeds.

These points, however, in the end were rather considerations for the large estates than for the small farmers, because on the large estates there is always an abundance of food and servants.

Changes which have taken place in these breeds.—Both the Hollanders and Appenzellers were bred purely until very recently. The Appenzellers have in a very remarkable degree retained their color, marks or markings, form of body and limbs, and useful qualities; the only change is in their live weight, which has increased from one-fifth to one-fourth during the period they have been kept on the estate. But the change in the Hollanders is much more remarkable until the fifth, sixth, and even seventh generation, although until 1858 there was no mixture of blood. These changes serve to demonstrate what great modifications a change of food and keeping (in Holland these cattle were mostly kept on pastures, whilst here, during many years, they were kept exclusively in the stable) will produce in the qualities of even a fixed or permanent type or race. The most prominent of these changes are as follows: 1. So far as the animal itself is concerned, 1821 these animals carried their head very low, the horns were very short and bent forward, the neck thin, a very wide barrel, a somewhat hump-backed spine, and a falling off from the hips to the insertion of the tail. During the milking season the cows were very thin. At present the younger generations present the following: An elevated head, upright horns, thin neck, with a well-proportioned body or barrel, straight back, and continuing on a line to the root of the tail. During the milking season the cows do not appear as thin as formerly. There has been no change in the color.

2. In relation to the useful qualities, the following changes have taken place: Notwithstanding that the food has always been abundantly supplied and of equal quality, yet in the thoroughbred animals the yield of milk has decreased from generation to generation. In some of the later generations the yield of milk has regained its former quantity, whilst in others not. For instance, in 1829 one of the imported Holland cows called *Little Goody*, *(Kleine Gute)* during a period of four years yielded an annual average of 3,424 quarts of milk. Her daughter met with an accident shortly after her first calf, so that no account was kept of *her* milk, but *her* daughter, grandaughter of *Goody*, yielded an annual average of 2,200 quarts only, and in the progeny of this last for four or five generations the quantity was not increased. "Moye," another imported Holland cow, gave an annual average of 3,216 quarts, her daughter yielded an annual average of 2,164 quarts, her grandaughter only 1,487 quarts; her great-grandaughter, however, gave 2,260 quarts, and the progeny now in the fifth and later generations yield 2,493 quarts. A third cow of the same importation called *Old Cow*, gave an annual average of 2,450 quarts; her daughter gave 2,040 quarts, her grandaughter 1,849 quarts, her great-grandaughter 1,999 quarts, whilst the next and later generations yield 2,475 quarts. But this depreciation in the milking quality has been fully compensated for by the greater susceptibility of taking on fat and flesh, better adaptation to the yoke, and much more rapid development and maturity. Is it possible that these changes which have been wrought are any proof that the original animals were not thoroughbred, or of a permanent type? Such a conclusion would be no doubt justifiable if there had been inequalities in the progeny or back breeding, or decided and remarkable differences between the parents and offspring, but such have not transpired. The changes have been gradual, and become remarkable only when the fifth or sixth generation is compared with the original importation.

SYSTEM OF BREEDING—THE AGE AT WHICH ANIMALS ARE BRED.

Bulls are put to service at 22 to 24 months old, and continue in service until they are five years old; after this period it is believed that they lose their vigor; in any event they become too heavy and are very slow in their movements. With respect to the cows, they are expected to drop their first calf when they are three years old. When they have attained this age, they are so far developed that milking does not impair them. But there are many exceptions to this rule: the cows do not come in season very soon, and as an average do not drop their first calf until they are 39 months old. As a rule the cows are bred as long as their yield of milk is satisfactory. Of the present lot of pure bred Holland cows, there are —— which have dropped more than six calves, five that have dropped four to five, five that have dropped three, and five that have dropped two only. But the eldest of these cows is in such a condition that she will yet pay well for the shambles.

Calves are dropped during the course of the entire year. Formerly an attempt was made to have all the calves dropped during one portion of the year, but since an arrangement has been made to supply milk dealers, the quantity of milk to be delivered has been as uniform as it was possible to have by a regular succession of fresh milch cows. But notwithstanding the milk traffic, it has been a disideratum to have the cows produce a calf every year. The "Canvass" or Appenzell cows have with great regularity produced a calf every year, but not more than one-half of the Holland cows can be relied on for such promptness; the other or irregular half produce a calf once in every fourteen, fifteen or sixteen months, and some have even greater intervals.

In breeding, a son is never bred to the dam, nor a sire to the daughter, but brothers and sisters have not unfrequently been bred together.

INTRODUCTION OF STRANGE BLOOD.

On account of the peculiar markings (the *canvass*) of the Appenzellers, they for many years past have been bred in-and-in, and there is no intention of crossing them with any other race. In order to develop the milking qualities of Hollanders to a greater extent, part of the cows are bred to a pure Holland bull, and others to a bull of the famous new milk race known as the "Rosenstein" race. A full description of the origin and qualities of this last race will subsequently be given.

In 1860 there were 34 cows and heifers in calf on this estate. Of these one cow miscarried, six did not drop any calves during the year, and the remaining 27 cows and heifers produced 27 calves. For special reasons *two* of these calves were sold, and as the result of the year 1860, the 34 cows and heifers dropped 25 fine healthy calves which were retained.

We were kindly furnished with a copy of a summary from the "milk register" at Weil, for 1858–9–60. Every two weeks the yield of milk, for 24 hours, of each cow is measured, weighed and registered, as well as the day on which the calf was dropped, and the last milking of the cow before calving. From this register the quantity of milk produced by each can be approximatively ascertained—at all events near enough for all practical purposes.

Year.	No. of cows.	Average yield of each cow in quarts.	Maximum yield in quarts.	Minimum yield in quarts	No. of cows yield'g more than 2,425 quarts.
Appenzell or "Canvas."					
1858	7	2212	3096	1799	4
1859	8	2090	2954	1811	3
1860	9	1890	2615	1560	1
Holland cows.					
1858	25	2274	3472	1444	10
1859	16	2224	3272	940	7
1860	20	2110	2894	1384	5

Since the introduction of the *Rosenstein* blood among the Hollanders, the milk of the pure Hollanders has not been kept separate. In explanation of the great disparity of product of the several years, the attendant informed us that 1859 was a very dry year, and herbage short and scant, whilst on the other hand 1860 was a very wet year, and the herbage was soft and watery.

Being in possession of the keys to the several gates, obtained, through the courtesy of the landlord, from one of the King's officers, we proceeded to the estate of Seegut. Elsewhere, or at some other time, I may describe the system of agriculture, horses, sheep, &c., on these respective royal domains, but at present shall confine myself to the cattle only. I have already mentioned the large, easily fattened, and, to the yoke, well adapted race from the rich pastures of the Canton Schwytz, but which excel in their milking qualities rather than in any other. They were excelled in this respect by one other race only, viz: the Hollanders. This fact induced the King to send a herd of twenty-four cows and one bull of the Schwytzer race to Seegut (or Sea Domain.) This herd was purchased in 1830, in Switzerland, in the vicinity of Zürcher Sea. They were a very dark brown, almost black, with a light stripe on the back; they were large animals, and very strongly built. In addition to these there were—aside from some Hallish-Limburgish—Mürzthalers and English cows, which were there for experimental purposes; also, a small herd of Holland cows from the domain at Weil. Both of these breeds were at first bred separately and purely. In the fall of 1838, the much dreaded cattle disease (or *pleuropneumonia*) broke out in this herd, and appeared to affect and destroy more of the Schwytzers than of the other breeds. The Hollanders seemed to flourish in this new locality, and were already well acclimated; therefore, the Schwytzer cows that escaped the disease were subsequently bred to Holland bulls. This herd continued to be bred in this manner until 1861. During a few previous years, it was discovered that the cows were very irregular in calving; some were dry an extraordinary length of time, others miscarried, and some produced very sickly and puny calves. It was then determined to make a change. There being a good market for milk in the immediate neighborhood, it was resolved to replace the defective cows by those of the "Rosenstein" breed—to be hereafter described—which has a good deal of the Limburgher and Holland blood in it. There are now at Seegut, in addition to the two original breeds, some Hallish-Limburgher cows, which will continue to be bred to a Rosenstein bull. On this estate there are:

WORK CATTLE.

Full grown and accustomed to the yoke	30
Young cattle from six months to three years	14
Young cattle less than six months	6
Total	50

Of these 50 oxen, 23 were purchased and 27 bred on the estate.

MILCH COWS.

	Holland.	Rigi-Holland.	Limburgher.	Total.
Cows	18	17	5	40
Heifers two years old and over	5	4	5	14
Heifers one year old and under two	5	5	..	10
Bulls for service	2	1	..	3
Bulls over one year old	3	1	..	4
Bulls under one year old	4	3	1	8
Heifer calves under one year old	20	17	..	37
Total	57	48	11	116

In addition to these three breeds, there is yet a Rosenstein bull to be bred to the Limburg cows; and for the use of the neighboring farmers, there is a bull of a cross between a Shorthorn bull and Rosenstein cow.

The Hollanders on this estate are of the same purchases and importations as those at Weil. The Rigi-Hollanders are of the 1829 importation, and do not differ from the others except in color, which is rather darker.

The Limburghers were purchased in the eastern portion of Wurtemburg, on an estate where they for many years have been thorough-bred. The cows are symmetrically built, appear to have very gentle dispositions, fine bones, a light head, fine horns, but the back is not altogether straight; the color is a dark dun. The cows are small, and seldom exceed 700 pounds live weight. This diminutiveness in size is no doubt produced by breeding them at too tender an age; because, as a rule, in the neighborhood where they came from, the cow drops her first calf before she is fully two years old. The average weight of the calves when dropped is 58 pounds. It is somewhat remarkable that if the bull calves of this breed are castrated at the proper time, they become large and heavy work oxen, so that when fully matured and during severe labor, they will weigh, unfattened, 1,300 pounds, but when fat often exceed 1,800 pounds live weight.

Feeding and other care and treatment of the cattle, at Seegut, are the same as at Weil; but as this is the only place where an account has been kept of the milk product of the Rigi-Hollanders, it may be well to present a summary of it:

Year.	No. of Cows.	Av'ge of each per year in quarts.	Maximum in quarts.	Minimum in quarts.	No. cows yield'g over 2,425 qts. annually.
1858	8	2,564	3,102	2,104	4
1859	12	1,912	2,516	856	2
1860	13	2,185	2·689	1,720	5

THE ROSENSTEIN RACE.

Between Stuttgard and Cannstadt, just before entering the romantic valley of the Neckar, is a royal estate of 239 morgens, with a beautiful park and the castle of ROSENSTEIN (Red or Rose Stone—*English.*) In accordance with a principle adopted and practiced by the late King of Wurtemburg, that on all his estates the *useful* should be made as ornamental as possible, he determined to establish a cattle-breeding establishment at Rosenstein in 1833. The objects in view in establishing this estate were—

a. To ascertain definitely the qualities of foreign breeds of cattle which from time to time, here or there, might be commended for superior qualities.

b. The creation of a new race of cattle, which should combine in a high degree, in the individuals of the race, according to sex, the following *four* qualities, viz: Superior milking qualities, early maturity, susceptibility of being readily fattened, and endurance under the yoke.

There is, too, on this estate, a complete *hennery*, where all descriptions of poultry are bred, in order to study their habits and ascertain their respective qualities.

The cattle in this park are green-soiled with the green crops and grass cut from the lawns about the castle, and from the two parks adjoining the residence in Stuttgard, which are attached to Rosenstein. Should the proper quantity of food be deficient from these sources, then grass is purchased in the vicinity. The green summer crops on this estate are grass, clover, lucerne, and a mixture of vetches and oats. In winter the cattle are fed hay and sugar beets; these latter are brought from the Seegut estate. For litter, straw and forest leaves are used. The manure is used for top-dressing the lawns and gardens, and the straw thrown out with the manure in winter, is in the spring raked together and again made to do service as litter.

The stock of cattle at Rosenstein was as follows:

Race.	Breeding bulls.	Bull calves under 1 year old.	Cows.	Heifers	Heifers under 1 year old.	Work oxen.	Total.
White Rosenstein	4	6	27	16	16	4	73
Various cross breeds	..	..	15	7	4	2	28
Thoroughbred Shorthorns.	2	2	2	1	..	..	7
Thoroughbred Hollanders.	..	..	8	..	6	..	14
Total.............	6	8	52	24	26	6	122

The number of bulls here is in excess of the necessities of the herd, but those living in the vicinity are allowed to have cows served by the Rosenstein bulls.

COMPOSITION OF THE ROSENSTEIN RACE.

In September, 1833, this breeding establishment was created, and consisted of the following races:

1. A stock of White Hollanders, consisting of *five* cows and one bull, the immediate product of the importations of 1821 and 1829, and which were placed on the domain at WEIL. The stock at Rosenstein was used partly for cross-breeding, and another portion of it was kept for breeding pure Hollanders, until 1857. This Holland stock has received several accessions from the herd at Weil.

2. Ten cows and heifers of the cream-colored LIMBURGHER race, which have been already described. These were purchased in the districts of Gmünd and Aalen in Wurtumburg, for the express purpose of being bred to the Hollander bulls. A similar purchase was made in 1845.

3. Seven cows of the same race already described under the head of Weil, Kleinhohenhiem and Scharnhausen. They were used for no other purpose in breeding than for crossing, as explained at the commencement of this article.

4. Four cows of the long-horned Devon race, imported from England. They also were used for cross-breeding, but were retained a short time only.

5. Nine cows and one bull of thoroughbred Alderneys, imported from England. The cows of this race do not yield a relatively large quantity of milk, but it is of excellent quality and very rich. These Alderneys were in part bred to the Hollanders and in part bred purely until 1847.

6. Ten cows and a bull of the reddish-brown polled breed, from Yorkshire in England. These were bred partly pure and partly used for crossing until 1839, after which they were used for crossing only.

7. Seven cows and two bulls of the tractable, agile longhorned Zebu's,[*] with a large hump on the back; one of the most widely disseminated races of cattle in India and Africa, where they are employed as beasts of burden under the yoke, and to ride, but not for milking. Like some of the other races, these were bred partly pure and partly crossed until 1838, since then they were cross bred only.

ZEBU.

Since the inauguration of the establishment at Rosenstein, there have been added—

8. Cows and heifers of the Schwytzer race; they were first introduced at Rosenstein in 1838, from the stock-breeding establishment at Manzell, near Seegut, but were originally from the cloister of Einsiedela, in Switzerland, in which vicinity they were purchased and bred in-and-in. At Rosenstein they were bred to the Rosenstein bulls; the progeny giving promise of superiority. Cows of this race were from time to time removed here from Seegut.

9. A herd of four cows and one Shorthorn bull. This herd was upon the recommendation of Sir Robert Peel selected from the estate of Sir James Graham, in Cumberland, in the spring of 1847. Two of the cows were reputed to be famous milkers. But this herd suffered so severely in comparison with the herds of other breeds at Rosenstein, that they were finally removed.

10. Six cows and heifers of the JERSEY breed, imported directly from the island of Jersey, in August, 1850. These were bred to bulls which

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[*] The domestic cattle of India is commonly known by the name of Zebu, and is conspicuous for the curious fatty hump which projects from the withers. These animals are further remarkable for the heavy dewlap which falls in thick folds from the throat, and which gives to the fore-part of the animal a very characteristic aspect. The limbs are slender, and the back, after rising towards the haunches, falls suddenly at the tail.

The Zebu is a quiet and intelligent animal, and is capable of being trained in various modes for the service of mankind. It is a good draught animal, and is harnessed either to carriages or plows, which it can draw with great steadiness, though with but little speed. Sometimes it is used for riding, and is possessed of considerable endurance, being capable of carrying a rider for fifteen hours in a day, at an average rate of five or six miles an hour. The Nagore breed is specially celebrated for its capabilities as a steed, and is remarkable for its peculiarly excellent action. These animals are very active, and have been known to leap over a fence which was higher than our five-barred gates, merely for the purpose of drinking at a certain well, and, having slaked their thirst, to leap back again to their own pasture. As a beast of burden, the Zebu is in great request for it can carry a heavy load for a very great distance, though at no great speed.

There are various breeds of Zebu, some being about the size of our ordinary cattle, and others varying in dimensions from a large ox to a small Newfoundland dog.—WOODS' *Illustrated Natural History, Vol I.*

were obained by a cross between the Hollanders and Alderneys, as described above in No. 5. The Jersey cows suffered in comparison of their milking qualities with the new or Rosensteiner race.

11. Four cows of the Mürzthaler race. These were purchased in 1853, in the Steyermark, and were bred until 1856, when it was found that they possessed no superior qualities, they were removed. Oxen of this breed are, however, yet to be found on the domain at Weil.

12. Four cows and a bull-calf of the small black-spotted BRITTANY race in France. At the Paris Exhibition, in 1856, they were highly extolled as possessing superior milking qualities. But upon actual trial they were found to possess no qualities superior to several herds of indigenous German cattle, and were consequently soon removed.

13. Two heifers of the easily-fatted race of CHAROLAISE, from the vicinity of Lyons in France, which were purchased with those of No. 12, were bred two years and then removed.

14. Five cows and two bulls of the famous readily fattening and early maturing short-horned English (Durham) race. A part of this herd was obtained in April, 1857, from the model farm of Prince Albert at Wind sor, and a part from Jonas Webb, at Babraham; these are bred partly pure and partly for the purpose of crossing.

Out of twelve of the above described breeds or races, six have served no other purpose than as affording the means of a scientific inquiry and comparison of their qualities; they were removed as soon as it was fully ascertained that they possessed no qualities in a superior degree to other cattle on the domain; and it is confidently asserted that no trace of their blood remains in any of the animals now retained. Five races, viz., Hollanders, Limburgers, Schwytzer, Alderney and Zebu, have commingled their blood to form a new race whose type is now fixed and progeny constant, and known as the Rosensteiner race or breed; whilst others are yet in a transition stage—inconstant in breeding, and consequently no fixity of type. Only one of the original breeds is kept pure—the Durham; but even a part of this herd is kept for crossing.

I took great pains to obtain all the data of the history and description of the various breeds of cattle on the King of Wurtemburg's domain, because I had heard of the "*Rosenstein*" race before I visited Germany, and heard of it everywhere in Germany, and after having seen the animals themselves became satisfied that if the Germans are the appreciative race of people which I believe them to be, that the *Rosensteins* are destined to be, in Germany, what the Shorthorns are in England and America, viz: the superior and most desirable breed. The origin of the Shorthorn is not definitely ascertained—neither is that of the Improved Leicester or Southdown sheep—the English breeders being either too selfish to impart knowledge which may be of benefit to the world at large, or else too ignorant to write; whilst the King of Wurtemburg ordered a correct record to be made of every step which was taken in establishing the new race, and gave his Privy Counsellor, G. F. SCHMIDT, privilege to publish it to the world.

Having given a synoptical view of the races employed in the production of the new race, it is not improper to detail the several steps taken to consummate the fixity of type.

WHAT BLOOD WAS EMPLOYED IN THE PRODUCTION OF THIS TYPE?

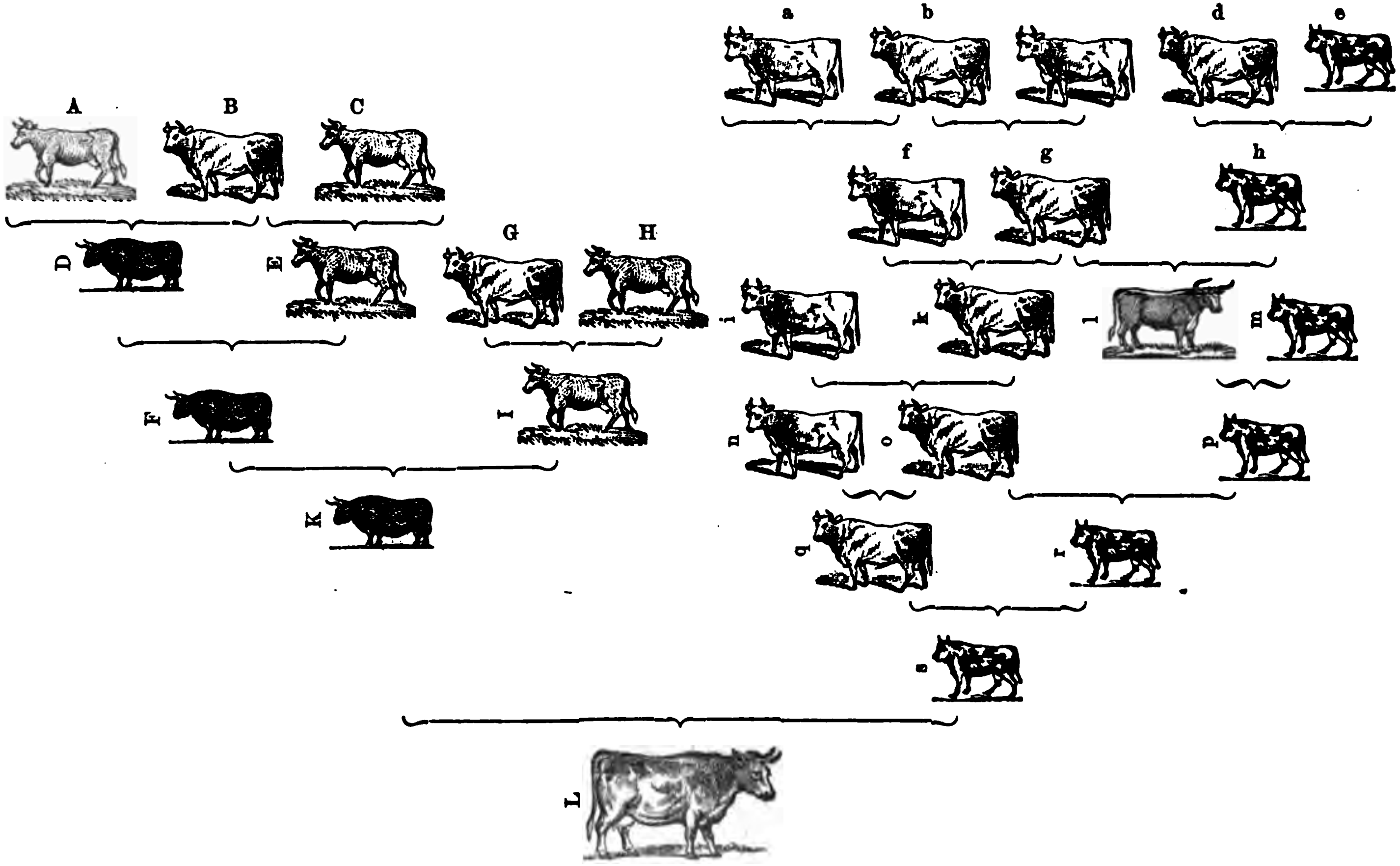
The White ROSENSTEINER breed is, so far as blood is concerned, the product of the crossing of several constant breeds. If we wish to trace back and ascertain definitely what blood is represented in the present fixed type or constant race of Rosensteiners, it will be found on the original sire's side to have descended from a Holland bull, AFFRA, dropped shortly after the importation of 1821; and of five Holland cows, viz: STULZE, SNEK, BLAUTIGER, BAERENPOOD and DORIA—a portion of which were imported in 1821, others in 1829, from Holland and Friesland, and then placed on the domain at WEIL. There is not a single animal in the entire herd of the White Rosensteiners which does not trace back on the *one* side to these progenitors. The five Holland cows were all celebrated milkers. The color alone was not constant; the cows as well as the bull himself were "blue tigered," and black spotted, but many of their progeny were white, and after 1833 all their progeny that were white were selected to be placed in the new establishment at Rosenstein. The blood mixed with this Holland was, in some instances, that of the Limburger only; in others that of the Schwytzer only. But in most instances three or four breeds or blood is represented, such as the product of a Holland-Limburg, or Alderney-Limburg dam, and a Holland-Schwytzer or a Holland-Alderney, or a Holland-Schwytzer-Alderney sire. In other instances the Zebu blood is added to these.

IN WHAT MANNER WERE THESE VARIOUS STRAINS OF BLOOD COMMINGLED?

This question may be more satisfactorily and briefly answered by presenting the pedigree of several cows than by any detailed verbal description.

[NOTE.—I do not wish to be understood as asserting that a new *race* of cattle, in the signification of the term "*race*," as employed and understood by NATURALISTS, has been produced by the King of Wurtemburg—but that a new race, strain, breed, or family, in the sense in which *breeders* generally understand any or all of these terms, has been produced.—KLIPPART.]

PEDIGREE OF LEDA.



PEDIGREE OF LEDA—Continued.

PEDIGREE ON SIRE'S SIDE.

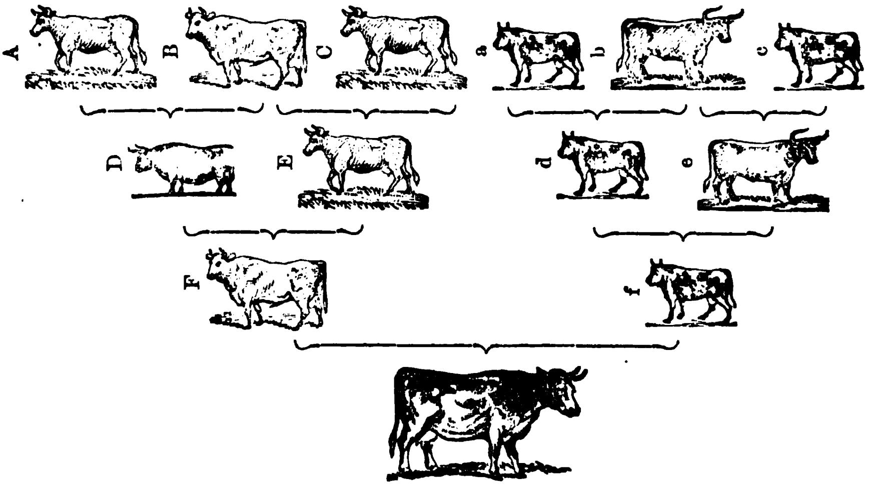
A. Schwytzer cow, Freude, Oct., 1837.
B. Holland bull, Pollux, May. 1838.
C. Schwytzer cow, Starle, Oct., 1838.
D. Holland Schwytzer bull, Tell, Sep. 1840.
E. Holland Schwytzer cow, Schimmele, March, 1842.
F. Holland Schwytzer bull, Nimrod, Jan., '45.
G. " bull, Kilian III., Oct., 1840.
H. Schwytzer cow, Freude, Aug., 1841.
I. Holland Schwytzer cow, Strausle, Jan. '45
K. " " bull, Hugo, June, '49.
L. White cow, Leda, February, 1852.

The bull Pollux is g g.g. sire on sire's side, and is g.g. sire on dam's side.

PEDIGREE ON DAM'S SIDE.

a. Holland cow.
b. " bull, Jacob, March, 1828.
c. " cow.
d. " bull.
e. Limburger cow.
f. Holland cow.
g. " bull, Jacob II., Dec., 1831.
h. " Limburg cow, Blassle, June, '31.
i. " cow, Doria, March, 1833.
k. " bull, Kilian II., Feb., 1835.
l. " Limburg bull, Astor, Oct. 1834.
m. Limburg cow, Spies, 1833.
n. Holland cow, Blane.
o. See B, on sire's side of the pedigree.
p. Cow Spies, July, 1837.
q. Holland bull, Jacob III., Feb., 1842.
r. Cow Vabie, Dec., 1842.
s. Cow, Hauptlie, Feb., 1847.

PEDIGREE OF THE COW CLARA.



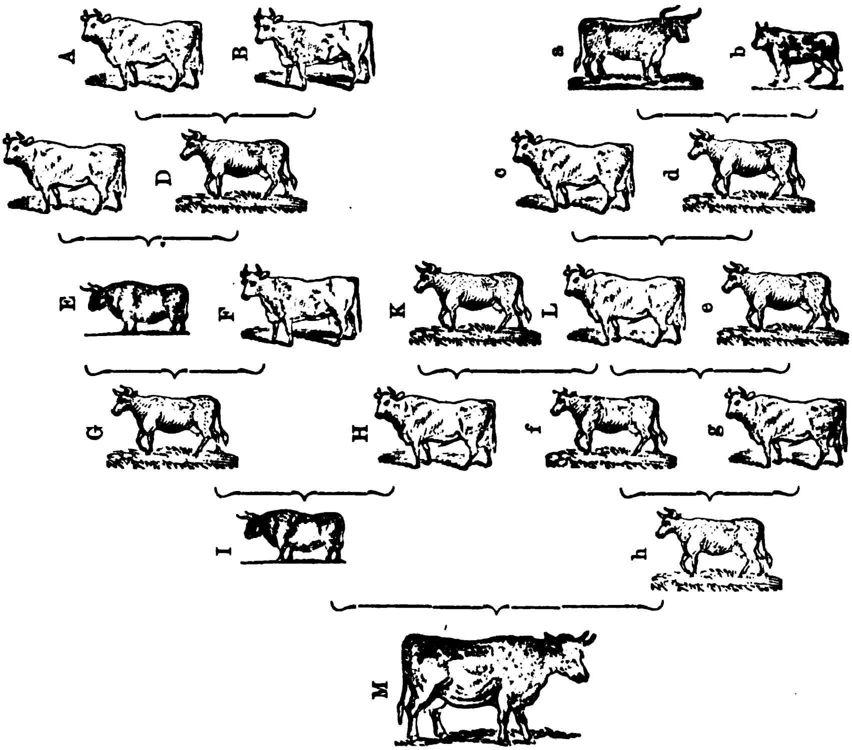
PEDIGREE OF SIRE.

A. Schwytz cow, Freude, Oct., 1832.
B. Holland bull, Pollux, May, 1838.
C. Schwytz cow, Starle, Oct., 1838.
D. Bull Tell, Sept., 1840.
E. Cow Schimmele, March, 1842.
F. Bull Nimrod, Jan., 1845.

PEDIGREE OF DAM.

a. Limburg cow, Mina I., 1829.
b. Alderney bull, 1836.
c. " cow.
d. Cow, Mina I., Jan., 1842.
e. Alderney bull, Nimrod, April, 1842.
f. Cow, Mina II., March, 1846.
g. White cow, Clara, Jan., 1849.

PEDIGREE OF COW HIRSCHE.



PEDIGREE ON DAM'S SIDE.

a. Limburg Bull.
b. Alderny cow.
c. Holland bull, Jacob II., Dec., 1831. Same as bull g. in pedigree of Leda.
d. Limburg Alderny cow, Fanny, Nov. '31.
e. " " " Blane, Nov., 1834.
f. " Holland cow, Fanny I., Dec '39.
g. Holland bull, Kilian III., Oct., 1840. Same as bull G. in pedigree of Leda.
Holland Limburg Alderny cow, Fanny. II., March, 1844.

PEDIGREE ON SIRE'S SIDE.

A. Holland Bull.
B. Limburg cow.
C. Holland bull, Jacob II. Same as bull **c**, on dam's side.
D. Holland Limburg cow, Blassle, June, 1831. same as h, in Leda's pedigree.
E. Holland Limburg bull, Astor, Oct., 1834. Same as I, in Leda's pedigree.
F. Holland cow, Tiger, Feb., 1835.
G. Cow, Emma, Feb., 1838.
H. Holland bull, Epple, April, 1839.
I. Bull, Elias, Jan., 1842.
K. Holland cow.
L. " bull, Koller, April, 1836.
M. Cow, Hirsche, Feb. 1846.

The Holland bull, Jacob II. is an ancestor on both sire and dam's side, and the Holland bull Koller is great grand sire on both sire and dam's side.

When a new race or breed of cattle is to be established by means of cross breeding, it is to be taken for granted that the breeder thoroughly understands the blood with which he is operating, and has certain well defined objects which he desires to obtain.

But it must not be supposed that the proportion of *blood* in cross breeding is established according to arithmetical rules or calculations. If the proportions were thus established *in fact*, the present experiment would have failed of attaining the desired object in the short space of time in which it was actually consummated; but the power to transmit qualities to offspring varies very greatly in different breeds or races; it seems to be possessed in a very remarkable or extraordinary degree by the Holland race. In producing a cross breed, the question naturally arises: Which bull is to be used in order to improve the progeny, to supply a defect, or to make a desirable change? The proper answer to these questions will, in every instance, indicate the course to be pursued. If any one will take the pains to study the foregoing pedigrees closely, he will find that—

a. There has been consanguineous breeding.

b. The consanguineous breeding must not be pursued through many generations, but must be interrupted by the introduction of other blood.

c. That a majority of the blood must be drawn from *one* race.

HOW LONG DOES THE TRANSITION STATE CONTINUE? *Or what length of time is required to fix a certain type permanently?*

The cross breeding commenced in 1834. Of the first progeny there were many animals—notwithstanding, they had some good qualities—yet, for the specific purpose in view, had more or less defects, and were, in consequence, rejected. It was only in the fourth and fifth generations that the "*back-bred*" animals had become so reduced in numbers, that a person could select a calf that would with tolerable certainty transmit its qualities. A little more detail will, perhaps, make this point more intelligible. Out of twenty-five heifers, in part the product of the first cross and in part of the second cross, dropped in 1838 and 1839, *eight* only, after a thorough examination, were found to be in every respect satisfactory; six might have been retained, if no better ones had been found in the lot, but eleven presented the attainment of transmitted qualities in such a very slight degree that they were at once rejected.

In 1851 there were dropped 21 healthy heifers; of these 13 were found to possess the requisite qualities for breeding and the transmission of qualities, but eight could not be relied on as good breeders.

In the seventh generation, or 27 years after cross breeding had commenced, very few bulls are dropped whose progeny breed back. From this it will be seen that it requires breeding to the sixth or seventh generation, or a period of twenty-five years, before a new type can be rendered so permanent as to be reliable in the transmission of qualities with any degree of certainty.

What was the result of this cross breeding, or mixture of blood?

On the next page I will present a brief summary of the qualities of the new race, or "ROSENSTEINERS," and further on I will present a table of the qualities of the races the blending of which formed this new race. Now, if we may form a judgment or opinion from this summary and table, as to the qualities transmitted by each race to the new, the following may, perhaps, be accepted as being as near the truth as any analysis will give, viz:

The *color* is transmitted by the Hollanders (pure white); the *size* of the carcass, especially that of the cows, is derived from the Hollanders and Schwytzers; the *form* of the body has been modified and rendered more elegant by the introduction of Limburger and Alderney blood. The great period of time in which the cows keep in milk is inherited from the Hollanders; one of the Holland dams (of the Rosensteiner race), DORIA, yielded an uninterrupted flow of milk during a period of 33 months, without calving during this time. The excellent quality of the milk is derived from the Limburger as well as from the Alderneys, in those in which this latter blood is represented. The great yield of milk is derived equally from the Hollanders, Schwytzer and Limburgers.

In the work oxen the strength of the Hollanders is combined with the endurance of the Limburgers.

It is a self-evident proposition, that in order to obtain the best results, and secure the fullest development of the qualities of each of these races, that they must be properly cared for, fed, groomed, etc. Furthermore, the cows in calf should have full rations of rich or very nutritive food; the calves intended to be retained for breeding purposes should be allowed to suck longer than ordinary calves are permitted to do; those that mature early should be bred early, so that the progeny may not only retain this quality of early maturity, but that it may be further developed; those that mature late should not be bred until they are well developed; judicious selection of the age at which bulls are put to service; the cows to be "clean milked," or thoroughly milked, even when they yield small quantities only.

QUALITIES OF THE ROSENSTEINERS.

The cow stables (princely residences rather than stables) into which I was introduced at Rosenstein, were filled with Rosensteiners. At one end of the first stable I saw a Shorthorn bull, and in the other stable a Holland bull, and unless a person were well posted on "points," it would be difficult to decide which was Shorthorn, Holland or Rosenstein. The Shorthorn bull is heavier in the shoulders and chest, and the Hollander lighter in the flank than the Rosensteiner. Both the Holland and Shorthorn cows are heavier in the shoulders and very considerable lighter in the flank than the Rosensteiner cow, and yet I have seen Shorthorn cows, both in England and the United States, that did not differ essentially in general contour from the Rosensteiners. A cow (a portrait of which I was fortunate enough to obtain) which seemed to be the pet of the herdsman was of a milk white color, and weighed 1,493 pounds. Her height, measured from above the centre of the shoulder, was 53½ inches, and measured from this point to the outer edge of the bone in the hind quarter, 60 inches.

The average weight of this race is—

A calf on the day it is dropped	105	pounds.
Heifer calf 3 weeks old	131	"
" " 20 months old	670	"
" 2½ years old but not in calf	1,000	"
Cow 3½ "	1,150	"
" 8 "	1,400	"
Work oxen 6 years old	1,550	"

I mentioned, on a preceding page, that the prevailing custom in Germany is to reduce all cattle food to equivalents of good meadow hay. This custom so universally prevails and is so thoroughly practised, that it is difficult to obtain any other information from breeders, or even herdsmen, than that they feed "*so much hay worth;*" and as might be expected, I found the same custom at Rosenstein. The herdsman told me that a mature animal was fed daily an amount equivalent to 35 pounds of hay, cattle under two years, as an average, not exceeding half that amount.

So far as the milking qualities of this race are concerned, I can not do better than to copy the "milk register," in which the amount of milk given by each cow is daily put down, and at the close of the year a summary of the whole is made. The herdsman informed me that so far as the register is concerned, *all* the milk obtained from the cow is registered; that given to the calves was first milked and given in a bucket, and this amount of milk is not deducted from the aggregate yield.

The average yield of milk of a cow of the *constant* (permanently fixed type) race during the year 1860, amounted to 3,390 quarts. It may not be improper to state here, that the average yield of milk of six Holland cows during the same period, was 2,528 quarts for each cow.

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[*] The quart is 0.318 of a gallon.
Dict. of Weights and Measures of all Nations.

Name of the Cow. In the stable all the year, (*a*) of the constant white race.	When dropp'd.	Time of calving in 1860.	Time of last calving previous to 1860.	Quarts of milk in 1860.	Quarts of milk in 1859.	Quarts of milk in 1858.
Hirsche	1846	....	July 10, 1859.	4234	3842	5576
Sarle	1848	....	Aug. 13, "	3264	3968	4220
Clara	1849	....	Dec. 2, "	5128	3926	4880
Rosa	1852	Oct. 18.	May 26, "	2218	3060	....
Mina (dirty white)......	1852	April 4.	Mar. 12, "	3942	4140	4050
Leda	1852	" 5.	" 24, "	5076	4488	5896
Lola	1853	....	July 1; "	3650	3960	4620
Vavie	1853	July 17.	Dec. 28, 1858.	4514	6058	3120
Dina (yellow white)	1853	April 8.	April 1, 1859.	3986	3366	3364
Favorite	1854	....	Jan. 14. "	4722	4780	3284
Elitza	1854	Nov. 12.	July 17 1858.	2050	3014	2280
Anna	1855	Jan'y 3.	July 17, 1858.	3286	1560	1080
Grosse	1855	Oct. 6.	July 2, "	3000	2948	2880
Doris	1855	Nov. 17.	Nov. 8, "	4168	2832	....
Young Robin	1855	Jan. 12.	Oct. 14, "	2920	2040	....
Hesse	1855	May 14.	May 16, 1859.	3584	2822	....
Zwicke	1856	Jun. 27.	July 6, 1858.	3118	3138	....
Young Bella	1856	miscarried	Oct. 4, 1859.	1698	2100	....
Helene	1856	Jun. 19.	June 1, "	3696	2394	....
Lina	1856	....	Aug. 4, "	2188	1776	....
Ester	1856	Aug. 22.	" 29, "	3442	1440	....
Ketherle	1857	Jan'y 1.	....	2010	....	....
Bebele	1857	Apr. 10.	....	3444	....	....
Bertha	1857	Mar. 21.	....	2364	....	....
Average per cow....	....	....	....	3390	3200	3770
(*b*). *Cows in the transition stage—not yet constant or permanently fixed type.*						
Eva, red spotted........	1850	Feb. 16.	Sept. 27, 1858.	3540	2172	3000
Blümle, black spotted...	1850	Jan. 6.	" 25, "	2640	3718	2820
Frende, black	1852	Nov. 6.	Oct. 2, 1859.	2580	3300	3240
Schönelle, tigered*......	1854	Sep. 27.	Sept. 28, "	2820	3416	1602
Falbe, black.............	1855	....	" 12, "	3284	3264	936
Blume, black spotted ...	1855	Oct. 30.	Oct. 28, "	3630	2700	....
Blaue, mouse color......	1855	Jan. 24.	Nov. 7, 1858.	2584	2920	....
Graue, tigered...........	1856	....	" 2, 1859.	3358	736	....
Freia, red spotted.......	1857	Jan. 6.	....	3014	....	....
(*c*) *Cows not kept in the stables during the entire year* 1860.						
Lorche, white	1849	....	Dec. 9, 1858.	324	4526	2970
Kola, blackish gray.....	1848	Jan. 13.	July 27, "	2520	2344	....
Fanny, white............	1851	....	Aug. 17, 1857.	720	2774	3708
Lisel, white	1854	....	Dec. 19, "	660	2482	3430
Dorle, red spotted........	1851	Feb. 26.	Oct. 7, 1858.	1672	2014	2384
Seba, Yellow.............	1851	June 8.	Nov. 2, "	2216	4088	5062
Helm, blue tigred.......	1855	....	Oct. 29, 1859, (Miscarried.)	2296	2520	....

* *Tigered.* The common English term for this adjective is "*flea bitten.*"

In a country as densely populated as Germany is, in proportion to its natural producing capacity, the force of circumstances necessitates a rigid economy in the use of all agricultural products. Hence, not only are the nutritive properties and relative nutritive value of every forage plant well understood, as also the commercial quality and value of other plants in general cultivation, but the actual cost of production of each crop is as definitely ascertained as the amount obtained for it in market. Domestic or agricultural accounts are everywhere kept in Germany, with a scrupulous exactness. Hence every farmer is able to tell precisely what it will cost to rear a calf—if a heifer, until she is in milk; or if a bull, until he can be put to service; or if a steer, until he is fit for the shambles or the yoke, or both. The annexed table of the qualities of cattle on the King of Wurtemburg's estates, is therefore not an isolated case, but is simply such an account as any "*Graf*," "*Rittergutsbesitzer*," or "*Pächter*" can furnish anywhere throughout the Germanic States.

On the contrary, here in Ohio, where the population is comparatively sparse, where the producing capacity is very great, and labor very expensive, and where almost every farmer owns in fee simple the soil he cultivates, not one farmer in a hundred can tell how much a cow has cost to rear until in milk; how much of an income he derives from her milk, whether sold or consumed as milk, butter, or cheese; nor how much milk she yields in proportion to food consumed and her own live weight. There will be a small revolution in the breeds of cattle as soon as Ohio farmers keep as rigid accounts as the Germans do—especially in the milking qualities.

English farmers keep very loose and general accounts. In fact, England collects no agricultural statistics of England proper, and those of Scotland and Ireland are assumptions rather than realities. The truth is, that England does not produce as much, agriculturally, as she has credit for doing, and I presume her statesmen are well aware of this fact, and endeavor to conceal it as much as possible. In this respect, England is precisely like a merchant who *knows* that he is bankrupt, but does not want the world to know it, and is straining every resource to keep up appearances. It is true that in isolated cases, like that of Alderman John Joseph Mechi, a rigid account is kept; but at the same time, who does not know that his statement serves as a basis for the estimation of product of one-half of England? England does not produce more than half of the breadstuffs she consumes, nor more than half the meat; hence she wants free trade in breadstuffs and meat. But on the other hand, if some unsophisticated individual thinks that England is in earnest in her advocacy of free trade generally, let him make a shipment of American reprints of British authors to England, and if the custom-house officer of "*free-trade England*" does not, *not* only "*confiscate*" them, but commit them to the *flames*, it will be because the laws have been changed since July, 1865—and I am not aware that any such change has been made. This "*reciprocity*" and "free-trade" discussion is entirely out of place here, I am well aware; but the temptation was too strong for me to pass it over in silence.

Annexed is a table compiled by G. F. Schmidt, Royal Court Domain Councellor of the King of Wurtemburg, and copied from his publication of the King's stock-breeding establishments. (See table, pp. 230-231.)

AGRICULTURE OF WURTEMBURG.

The great variety of geological formations found in Wurtemburg, and the various elevations of the land, the constant succession of "hill and dale," and the Swabian Alps on the south-east, must necessarily induce a greatly varied system of cultivation. The highest points of cultivatable land, are not beyond the region of summer grains; therefore, a purely grazing region without plow land is to be found sporadically only on the northern portion of these Alps—the so-called sheep-walks; the grazing regions are, however, to be found in Allgua (in Bavaria) and in the Black Forest (in Baden). Notwithstanding there are some herds from Wurtemburg driven in Allgau and grazed there during the summer, and in the autumn brought home and stabled until the next spring. This Alpine region, whether from the sundering of the rocks at the vast height and consequent scarcity of water, or whether its severe climate is the cause of a sparse population, or whether from the dryness of the atmosphere, certain it is that here are the healthiest sheep pastures in great abundance; and from the same causes, the greatest scarcity of winter food. The more humid valleys at the foot of these Alps abound in grasses, and sheep are pastured during the summer on the Alps, and wintered in sheds at the foot of the Alps, throughout their entire extent in this State Little meadow spots, containing from 12 to 36 morgen, have each a shed in which food is deposited for wintering the sheep; and if the flock owner does not own one of them, he then gives his sheep in charge of the owner, and in settling the account, credits himself with the manure produced by the sheep, to balance the charge for the shepherds' and dogs' services and litter on the other or Dr. side.

Many of these mountain spurs have plateaus on their sides or summits, but the ascent is too steep to haul anything up from below; in such cases the land is pastured a series of years with sheep, until it is sufficiently enriched by their manure to produce several crops without manuring; the sod is then plowed down and crops grown upon it, and then put in pasture again. The crops are as a rule a rotation of cereals, and the last one a crop of esparsette, which is once mowed and then pastured. The "old" or original German system of farming, viz., to divide the estate into a given number of fields, and then to grow the same crop on each field alternately, and having a grass crop in the course, is yet retained in some of the plateaus of Swabia, where the system has undergone many modifications and developments.

Experiments in Cattle Feeding, Milking Qualities, Acclimatization, &c., on the King of Wurtemburg's Estates at Weil, &c.

NAME OF CATTLE RACES.	COLOR.	HORNS.	Live weight of milch cow.	Acclimatization in Wurtemburg.	Adaptation of oxen to the yoke.	Adaptability to fatten.	PROGENY.		MILKING QUALITIES.			100 lbs. of equivalents of hay yield of milk, in lbs.
							Calves, when dropped.	Weight of calf slaughtered, at four weeks old.	Yield of milk per cow per annum in pounds.	QUALITY OF MILK.		
										660 ounces of milk make of butter, in oz.	196 ounces of milk make of cheese, in oz.	
Large Strains of Cattle.			lbs.					lbs.				
1. North Holland & Friesland	Black or white, or blueish-white.	Short.	1200	Very good—breeds readily with natives.	Tender and slow, but very strong.	Good.	Large, and fatten readily.	95	6548	18	19	54
2. Stock from the rich pastures of Schwyz	Dark brown, with a light stripe down the back.	Short.	1225	Runs out in many localities.	Good.	Good.	Same.	95	5764	20¼	20	53
3. Durhams from the rich pasture of Tees	Red roan	Short.	1140	Not good.	Rather slow.	Excellent.	Large.	80	5000	18¼	19	46
4. Polled Yorkshires, from York	Reddish brown and white.	None.	1100	Promises well.	Medium.	Good.	Medium large.	85	5150	18¼	19	51
Medium Strains.												
5. Suffolks, from a region of coarse pasture in England	Reddish brown.	Polled.	935	Good.	Medium.	Medium.	Medium large.	77	4208	18¼	19	42
6. Devons, from England	Reddish brown.	Long.	850	Good.	Quick and have great endurance.	Great tendency to fatten.	Small.	50	2816	22	20	36

7. Herefords, from England	Same, with white stripe.	Long.	950	Not good.	Good.	Same.	Same.	55	2316	22	20	26
8. *Canvass* cattle, from Appenzell, Switzerland....	Black, with white "sheet."	Medium	950	Very good.	Quick, powerful and great endurance.	Good.	Medium	73	5056	21	20	50
9. Mürzthaler, from Styria.	White or red gray, and dark shades.	Long.	935	Good.	Same.	Good.	Same.	65	3220	21	19½	36
10. Limburgher, from rich pastures in Wurtemburg.	Yellow dun.	Short.	850	Native of Wurtemburg.	Oxen large and storng.	Good.	Same.	65	4024	23	21	50
11. Allgauers, from a region having course but sufficient food...............	Blackish-brown, white mouth.	Short.	800	Native of Upper Swabia, in Wurtemburg.	Medium.	Medium.	Very Small.	58	4652	20	20	52
Small Strains.												
12. Alderneys, from Channel Island...............	Yellow dun, or light red and white.	Short.	765	Good.	Inferior.	Medium.	Very small.	48	3860	25½	?	46
13. Mountain regions of Uri, in Switzerland.....	Blackish brown and white stripes.	Short.	765	Very good.	Medium.	Ordinary.	Medium	65	4732	20	20	54
14. Zebu, from East India.	White, with red or dun.	Short.	800	Very good.	Too weak.	Good.	Small.	..	*	*	*	..
15. Hungarian............	Whitish gray.	Very Long.	935	Good.	Quick, powerful, and great endurance.	Young Stock always poor.	Very small.	58	1524	22	20	18

* No milking qualities.

Towards the Black Forest, at the junction of the new red sandstone with the waved dolomite, the turf or sod is allowed to grow at least four years, generally five or six years, but very seldom ten or twelve years. Whilst the land is yet strong it is laid down in grass, then the grass is cropped several years, then pastured. But in a higher state of cultivation it is treated as meadow land—that is, it is manured and irrigated, and the cattle or sheep are green-soiled. The practice commenced many centuries ago of paring and burning the sod, but with the scarcity and great cost of fuel, this practice is almost discontinued. On this formation we find a complete rotation of crops—potatoes, oats, clover, fallow, grass, &c. These crops succeed admirably well on the moist sandstone regions here. On the keuper sand region a " four course " seems to succeed best, as follows: winter rye, summer grains, pasture; pasture till June, then put in fallow. In the immediate neighborhood of large towns the land is divided into such small parcels that, without regard to geologic formation, it is farmed more like a garden, and the plow more seldom used than in places where the tracts are of considerable size. But wherever the plow is used, the plowing is well done, and in consequence of the influence of the Agricultural College at Hohenheim, the farmers of Wurtemburg use more improved implements than anywhere I saw on the Continent. This college has introduced a number of reapers and mowers, but BALL'S OHIO MOWER, is the only one of the lot which gives entire satisfaction.

The management and application of manures is as diversified as the soils or rotations of crops are varied. There are localities where the liquids from the manure-pile run to waste in the roadside gutters; and others where not only the liquids, but everything else of even a remotely manurial nature, is very carefully collected, conserved and applied. In the wine-growing regions the greatest desire is manifested for an increased production of manures—it is in the wine-growing districts where the most artificial and mineral manures are applied. In these districts everything which will contribute to the formation of manure is called into requisition; leaves of the forest trees, ferns, moss, sawdust, turning-chips, and offal of every kind; the straw produced contributes a small fraction towards the amount of manure applied. And in order to permit the greatest amount of manure to be applied to the vineyards, the practice has been to grow three or four crops on *new lands* (from which the forest has just been removed), without manuring. As a rule the stables are cleaned twice a week; in some instances the manure is at once applied to the fields, in others it is thrown into a receptacle, which is coverd with boards, and as soon as the crop is off the fields it is then applied and plowed under; there is little or no surface manuring except on grass lands. But I have seen huge piles of manure, thoroughly rotted—the accumulation of years—and all the active portions evaporated, in Wurtemburg as well as in Ohio. Next to barn-yard manure in quantity is the sheep manure, and it is very highly prized;* but farmers are not yet agreed as to the *proper time* when it should be applied; and in consequence of this indecision, it can at times be purchased "for a song." Of mineral manures, *gypsum* or plaster of Paris is the most extensively used—especially clover and Lucerne, but very seldom on rape, pod-fruits or meadows. In the new red sandstone regions burnt lime is more extensively used than any other artificial manure. In the vineyards marl is more extensively used than either gypsum or plaster. All the roads in Wurtemburg are "*metalled*" with limestone, and as this becomes reduced to powder or dust it is washed by rains into the ditches or gutters by the wayside; this *wash* is carefully collected and applied as manure, and, I am assured, with the best results. Phosphates, superphosphates, bone-dust and guano are by no means strangers to the Wurtemburg farmers; but they rely much more upon their own production and mineral manures than upon imported or manufactured ones.

Where the soil is a loam—that is, a mixture of clay and fine gravel, with a gravel or pervious subsoil—there the field is not plowed into lands, but where the subsoil is impervious, then the field is plowed into lands. This custom has been followed, I am told, for many centuries—in fact in some settlements the richest loam and soils least likely to wash are plowed into lands more from tradition than for any other reason. These lands vary in width from four furrows to sixty furrows. In Wurtemburg, as elsewhere in Germany, the lands are well pulverized; a stiff clay is not unfrequently plowed six times before it is seeded; and the mellowest loam is never plowed less than four times; this is done not only that the soil itself may be well commingled, but also to have the manure well distributed.

The harrows are of various forms and kinds—some with iron, others with wooden teeth. Wheat and winter crops are all sown broadcast; the drill is used for sowing rape, peas, lentils and beans. The scythe and sickle are used to gather the crops, and there are perhaps not half a dozen reapers or mowers in use in all Wurtemburg, and the same may be said of the horse hay-rake. The great bulk of the crops are threshed with the flail; in some districts horses or oxen "*tramp*" the grain out, although there are a few threshing machines in the kingdom, but these are on large estates, or else in neighborhoods where laborers of this kind are scarce.

In Wurtemburg much more care and attention is given to meadows than in Saxony or Prussia, notwithstanding the cultivation of forage plants is very general throughout the kingdom. The Wurtemburgians think it very important to secure good and healthy hay for their cattle, and therefore pay a larger sum per acre for meadow lands than they do for plow lands. The meadows are not confined to the depressions or lowlands in the valleys, but are found on the plateaux or table lands at very considerable elevations, not only where it would be difficult to use the plow, but where there is admirable plow land. Almost all the meadows are so arranged that they may be flooded or irrigated—but flooding is the more common practice. It deposits *silt* and other fine detritus, which acts as a manure for the grass. Where they can not be flooded they are very liberally manured. From 80 to 100 cwt. of manure are applied per morgen, or say 100 to 133 cwt. *per acre*, or three times as much as is applied to plow lands in that kingdom. The elevated meadows consume more manure than they can possibly be made to yield, for the crop is seldom more than 30 cwt. (1½ tons) per morgen, including the regular crop and aftermath. The hay is fed with straw, the fern and forest leaves used for litter, and yet the supply of manure is far short of the demand. The consequence is that hay is increasing in price, forage plants more extensively cultivated, and the forest meadows turned over to the plow. But the meadows in the valleys and depressions are seldom manured with barn yard manure, the geologic formations immediately above them are found to disintegrate sufficiently rapid to yield an excellent manure for them. These irrigated or flooded meadows yield two or three crops per annum, and have beside a good crop of pasture in the fall, and a crop of the so-called "scrape grass" at the commencement of winter. Almost all the meadows are provided with portable racks—often on wheels—in which the new-mown grass thrown and put under cover in case of a sudden shower, and then again removed to the meadow in fair weather and cured. Other meadows have portable platforms on which the partly cured hay is thrown during a shower, so that the hay does not rest on the ground.

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* It is computed that 600,000 sheep produce manure equivalent to nine million cwts of barn-yard manure.

PASTURES.

The pastures consist of the sheep walks on the alpine slopes already mentioned, and the out-crops of the muschelkalk formations, which appeared adapted for grasses and pastures only. In addition to these are the forest pastures. I did not learn that any special care was taken to renovate the pastures; the droppings of the sheep and cattle, together with the disintegrated matter brought from the higher points by rains, seemed to keep them in good condition. During the past half century, in regions where the three year fallow system is practised, the fallows are sown in clover of various kinds, including esparsette and lucerne, and then pastured.

AGRICULTURAL PRODUCTS.

Among the agricultural products the cereals are the most important. Wurtemburg exports them in considerable quantities to Switzerland, Vorarlburg and down the Rhine. The most fertile soils for them are the muschelkalk plateaux, the lias lime regions, and the southern slopes of the Swabian Alps which face the Danube. The chief of the cereals here is the "spelts" or "dinkel," (*triticum spelta*) which in many places or districts is the staple breadstuff, and consequently winter crop. It is preferred in Wurtemburg to all other varieties of wheat, for the reason that it is easier cultivated, has a greater product or yield, is subject to fewer diseases, better adapted to the soil and climate, can be garnered up longer without injurious results, and is entirely free from destruction by birds and insects in the field. It is sent to market and to mill in the *hull*, the same as barley is with us. Singular as it may appear, the grain deteriorates rapidly after being separated from the hull. From 75 to 225 pounds are sown on the *morgen*, and the crop has yielded as high as 3,000 pounds per morgen, or 66 bushels of 60 pounds each *per acre*, but the average crop for a series of years is 1,050 pounds per morgen. The "St. Peter's corn," or "one grain," (*triticum monococcum*—See Ohio Ag. Rep. for 1857, page 707) is widely disseminated throughout the kingdom, because it yields well on the poor tough clays, and has this advantage, that it may be sown as a winter or spring wheat, as circumstances may require.*

Wheat proper is grown only as a winter crop, although spring wheat is not unknown, but the winter wheat is grown for export rather than home consumption. From 1¼ to 2½ bushels are sown per acre, and in some districts 31 bushels per acre are harvested, yet the average for the kingdom does not exceed 18 bushels, or from one-fourth to one-fifth more than the Ohio average.

Rye is the staple cereal for breadstuff for domestic consumption in the northern part of the kingdom. In other parts it is grown more for the straw than the grain. It has produced as high as 40 bushels per acre, although the average is not over 18.

Winter barley is cultivated mostly by the poorer classes, because it ripens about two weeks earlier than the other cereals, and thus gives them time to secure their own crop before going out to harvest for others.

Spring barley is the largest summer crop, with the exception of oats, that is cultivated of the cereal family. It is grown exclusively for brewing. About 1½ bushels are sown per acre, and as high as 47 have been harvested—the average is 23.

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* The straw is exceedingly tough, and in the neighborhood of vineyards it is grown for the straw to fasten the vines to the stakes.

Oats are grown exclusively for horse and cattle food, except in years of great scarcity, when oatmeal is used for gruel, or mixed with other meal for cakes and bread. The yield is about the same as barley, but when grown with summer speltz as much as seventy bushels per acre have been harvested.

Millet and *buckwheat* are grown only when other crops fail.

Indian corn is extensively cultivated in the wine producing regions. It is said that corn and potatoes form the staples of breadstuff in these regions. Certain it is that so far as I traveled the valley of the Neckar, I found it every where as fine and as thrifty as in our own Miami and Scioto bottoms.

Field peas and Windsor beans (horse beans, hog beans—faba vulgaris) are extensively grown in fallow fields, the beans more extensively than the peas, because the bean stalks are used as fuel in winter.

Vetches (vicia—tares in England*)* are cultivated every where, but most generally are sown with oats for green fodder.

Garden beans (phaseolus) are very extensively cultivated on the southern slopes of the Swabian Alps, near Lake Constance, and whole ship loads sent in a green state into Switzerland, where they are sliced down and pickled for winter use. I found these sliced beans every where in Germany on the hotel tables, and they certainly were a very delicious dish.

Lentils are extensively grown in mixed forage crops. These mixed forage crops were a new feature to me. I often found oats, vetches, lentils, rye and barley mixed for green forage, and they are cultivated every where, from Schleswig-Holstein through Mecklenburg, Prussia, Saxony, Brunswick, Hesse, Wurtemburg, Baden, down to Bavaria. The variety of forage plants in Wurtemburg is not so great as in many other portions of Germany. Lupines are unknown, buckwheat is cultivated as a last resort after every thing else has failed, and spergula, incarnate or scarlet clover, Swedish clover, etc., are known but not in general cultivation. The chief forage plant is the common red clover, from which two to three crops are obtained. It is sown in the spring and one crop taken in the ensuing fall, and then one or two crops the next year, according to circumstances, when it is plowed down. The yield is from 20 to 60 cwt. per morgen, or say 25 to 80 cwt. per acre. On large estates, I am told, the average is about 60 cwt. or 3 tons per acre—this, of course, includes *two* cuttings. In some neighborhoods it is grown exclusively for the seed, which for years past has averaged $12 per cwt., but the supply is not equal to the demand, and much is imported from southern France, Styria, etc. Lucerne ranks next to the red clover as a forage plant. The seed is generally obtained from southern France and Italy, and is grown upon the muschelkalk formations as well as on the lias and jurassic. It is usually cut four times, once the first year and three times the second, and then plowed under.

Esparsette has recently been introduced and succeeds admirably well on the muschelkalk and jurassic formations.

Root crops are cultivated everywhere throughout the kingdom. The potato, however, is the chief crop. Before the "rot" set in, in 1845, it was the most extensive of all crops, and was largely consumed for cattle food and distilling; but it is now supplanted for these purposes by sugar-beets, common field beets and turnips. The best varieties are now cultivated, and they for the table only.

The genuine artichoke or *topinambour*, and not our common *Jerusalem artichoke*, once so largely cultivated for cattle food, is almost entirely supplanted by the field beet. As much as 500 cwts. of leaves and roots of the field beets have been harvested per acre, although the average does not exceed 200 cwts. Turnips, carrots and cow cabbage are grown for cattle food. Sorgo is also cultivated, not for syrup or sugar, but purely as a forage plant. It is sown broadcast and cut with a scythe or sickle, and fed green. I was assured that at least 4,000 morgen were cultivated in hops, although fifty years ago not a single hop was grown in the kingdom. They yield from four to four and three-quarter cwts. per acre, and sell at all sorts of prices, from $4 to $100 per cwt.

TOBACCO has been cultivated in this kingdom from its first introduction into Europe until the present time. A few years since, when the price advanced considerably, a vast extent of territory was devoted to it, but at present no more is grown than supplies the domestic consumption.

I forgot to mention in the proper place that there are 43,632 dogs in Wurtemberg. Of this number, 30,570 are used "to labor;" that is, they draw carts, are used on tread wheels, &c. A "*luxurious* dog"—that is, a pet dog, as a "*King Charles*," for example—is taxed four florins annually ($1·60), whilst the laboring dogs are taxed twenty four kreutzers (sixteen cents.)

I had often read of snails being used as food, but did not credit the statements. It so happened that when on my way to Bavaria, I was obliged to "lie over" at Ulm some three or four hours, and in rambling over the neighborhood I found a garden, in which were estimated to be some 40,000 snails. These were being fattened, and in the fall would be packed up in snail casks, and shipped to Bavaria, Austria, and even to Italy, where they are purchased by Catholics to be eaten during Lent and other times when meat is forbidden. The prices realized are from 12 to 16 cents per hundred.

The following table was compiled from the Reports of the Royal Statistical Bureau, and gives the average number of morgens in each crop, together with the average product per morgen, or the average money value.

CROPS OF WURTEMBURG.

	Number of morgen in each crop.	CROP. No of lbs. yield per morgen.	Value of crop in *florins* of 40 cents.
1. WINTER CROPS.			
Speltz, einkorn and emmer	647,392	941	30,211,626
Wheat	26,287	805	1,425,535
Rye	117,332	714	4,912,689
Barley	7,067	1,001	286,136
Mixed cereals	56,194	941	2,502,968
Total	854,272		39,338,954
2. SUMMER CROPS.			
Speltz	4,908	941	134,970
Wheat	10,697	765	431,086
Rye	21,700	695	651,000
Barley	274,754	1,011	11,114,034
Oats	408,589	716	11,746,933
Mixed grains	38,113	905	1,095,748
Total	758,761		25,173,771
3. VEGETABLES.			
Peas and lentils	25,632	625	958,630
Beans	13,359	952	542,835
Vetches	35,575	790	1,352,801
Indian corn	5,649	1,076	261,576
Total	80,215		3,115,842
4. COMMERCIAL PLANTS.			
Winter rape	26,647	$23 68	2,453,042
Summer rape	15,509		
Poppies	7,227	17 70	319,660
Hops	3,559	.4 cwt.	653,215
Sugar beets	8,185	150 cwt.	613 875
Cabbages	18,536	2,850 head	1,584,728
Potatoes 4-5	159,136	97 bu.	9,229,888
Flax, hemp, teasels and mustard	46,608	$28 value	3,262,560
Total	285,409		10,116,968
5. (1-5) Potatoes, turnips, cabbage, beats, carrots, &c	95,500	140 cwt.	
6. Clover, lucerne, esparsette	262,378	30 "	
7. Two crop meadows	641,607	22 "	
One crop meadows	240,000	10 "	
8. Pastures	229,389	10 "	
9. Orchards, &c	60,752	30 "	
Fallow	391,138		
	No. of trees.		Bu. produc'd
Seed fruit (apples, pears, &c.)	4,724,102		4,823,475
Stone fruit (peaches, cherries, &c.) Value 4,500,000 florins.	3,223,572		850,157
Grapes	59,843	$25 08	
Peat beds	54,350	5 to 15 feet thick.	2¼ millions cwt.*

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* The annual product is valued at $160,000. The price of turf or peat is about sixty cents per 1,000 bricks; this 1,000 will weigh from twelve to fifteen cwt. The railways estimate one hundred cubic feet of peat to weigh fourteen cwt. In other words, about 1,280 of these bricks make a bulk equal to one cord of wood.

As early as 1593, Duke Frederick I. introduced the silkworm and "*Morus Multicaulus*" into Wurtemburg, but it does not appear ever to have succeeded. One hundred years ago there were 19,000 mulberry trees in the kingdom, but at present there are 8,600 full-grown trees, 38,000 half grown, and 55,000 *bush* or young trees. During the past fifteen years the average crop of silk was 1,000 pounds of cocoons.

Leaving Wurtemburg I proceeded to cross the Swabian Alps and pass through Ulm and Augsburg to Munich (München *Germ.*, literally MONK'S *town*). I made this trip for the special purpose of having an interview with Baron LIEBIG, the Agricultural Chemist. The main points of the subjects discussed—so far as this report is concerned—will be found on page 39 of Part II. of this volume.

My stay in Bavaria was necessarily short, and as far as I could see and learn, the agriculture of Bavaria does not differ materially from that of other parts of Germany already described. From Munich I returned to Stuttgard, and from there went to Mayence (Maintz *German*), at the confluence of the rivers Maine and Rhine, and from there went "down the Rhine" to Cologne. The culture of the vine and the variety of the grapes do not differ materially from those of Wurtemburg, already described.

There was an International Fair at Cologne, commencing June 2d, and ending July 2, under the auspices and "*protectorate*" of His Royal Highness the Crown Prince Frederick William of Prussia. The Fair consisted of an exhibition of agricultural machines and implements. (2.) Household tools and implements. (3.) Garden architectural tools and implements. (4.) Forestry products and hunting paraphernalia. (5.) Agricultural products and fabrics. (6.) Products of mines. (7.) Floral exhibition. Mr. JOHN S. TAPPAN, of New York, was the accredited United States Commissioner to this exhibition; and the *General Committee* did me the honor to place me on the list of committeemen on agricultural machines. In my opinion the Fair was a failure, although England, France, Belgium, &c., sent liberal contributions; but all in all it was not as successful as the one at Stettin—was not as well patronized, and did not present as many features or points of attraction.

I now take leave of Germany—that cradle of much of our civilization—that nation which has baptized in her most precious blood much of the progress of the human race. To this people, whether residing in Germany, Scandinavia, or England, is due all the material progress and civilization of the past two thousand years. The trial by jury—that sheet-anchor of human freedom—was in constant practice by the Germans in Germany as early as the second century of our era, and was introduced into England by the Saxons; the method of conducting it was somewhat improved by Charlemagne. The Reformation in religion was accomplished by this nation; the art of printing, and engraving of all kinds were invented by it; gunpowder discovered; fire-arms invented; watches invented; and the discovery of gas and illuminating towns and cities by gas is purely of German origin.* The present system of astronomy was discovered by the Germans, together with almost all the astronomical and navigation calculations and formula.

In agricultural and horticultural affairs, the Germans discovered the art of grafting, and the improvements in vegetables and flowers by hybridization; they were the first to employ manures and to introduce a system of rotation of crops. They were the first to discover and manufacture sugar from beets.

The piano, the organ and many other musical instruments are German inventions, and written music is of German origin. Monuments of their architectural genius may be found in the St. Peter's Church, Hamburg, the cathedrals at Cologne, Strasburg, Ulm, Aix-la-Chapelle, Dresden, Munich, and in places which I did not visit. In poetry, painting and music this nation can present a list of celebrities unsurpassed by that of any other nation. Their prudence, economy, frugality, integrity, industry and miserliness are proverbial; their indomitable perseverance, obstinacy and "grasping" disposition are qualities which have made them no friends. In their arrogance and egotism they consider themselves the progenitors of the English and Americans, and regard these two countries as having afforded the inhabitants superior facilities for the development of inherent characteristics of the German tribes.

But the German mind is directed to mental culture rather than relief of physical toil; hence their wonderful progress in and development of metaphysics in all its various branches, the surprising degree they have attained in all the arts of ornamentation and personal accomplishments. But they do not appreciate the application of physics or material substances as well as the English or Americans—the bulk of their grain is ground by *windmills*, and the flour is always of an inferior quality; it is not an uncommon sight in Prussia, Mecklenburg and Holstein to count fifteen or twenty windmills without moving a single step. One good steam-mill would do all the grinding that these twenty windmills possibly can do, and would produce a greatly superior article of flour. In Northern Germany water-power could not be made available to operate machinery of any kind—the requisite "fall" could not be secured; and in regions sufficiently uneven to secure a proper fall, there are no streams, or if there are, they are entirely inadequate in their supply of water. The egotism of the Germans prevents them from understanding the advantages of "unions," or combinations, or an united effort to secure an object; this is very manifest in everything one sees from the government of their petty principalities down to agricultural operations in the field. I saw everywhere, in Prussia, Saxony, Brunswick, Hannover, Hesse, Wurtemburg and Bavaria, women in the field tying the newly made hay in large bed sheets and then carrying it home on their heads. In Wurtemburg I counted twenty women in one field carrying the hay home in this manner. It appears to me that these twenty women might have been employed in some lighter labor, and the sum of money they would have earned in one day would certainly have paid to have hauled all the hay home that they could carry on their heads during the same time. Then too I saw everywhere, a woman and a dog, or a woman and a cow or heifer, and sometimes a woman, heifer and dog, harnessed to a cart, taking manure to the field. In the coal mines, about furnaces and smelting establishments, women would wheel large barrows full of coal, fluxes, sand, etc., etc. In short there is not an out-door employment in which men or boys engage in the United States, that women did not do in Germany.

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* London was lighted by gas by a German. See "World's Progress," published by Putnam, N. Y.

In America we may be less *refined*, less metaphysical; we may fail to appreciate the importance or the bearing of the tragedies of Æschuyles upon our mental well-being; but it does not comport with our ideas of the respect due to the "gentler sex" to convert them into absolute beasts of burden. In the United States we have the physical or material world to deal with; we have yet millions of acres of virgin forests to remove, many cities to build, many railways to construct; in a word, the great future of *everything* connected with labor is yet before us; in Germany all these things are accomplished, and their acquired and surplus wealth is devoted to ornamentation, or the development of sciences, whether mental or physical. There is not in the whole United States a gallery of paintings or sculpture like the one at Hamburg, Berlin, Dresden, Munich, and half a dozen other places in Europe. There is more sculpture in the "Gardens" at Charlottenhoff, Pottsdam or Stuttgard, than there is in the whole United States. And however much we may desire to cultivate a taste for the classical and beautiful, we, as a nation, would not have time to study all these wonderful works of art, even if we had the wealth to purchase them. After all, I think that the humanitarianism embodied in the laws of a country or nation, and the *practical* esteem in which WOMAN is held, and with which she is treated in her every-day life, are better exponents of civilization than all the galleries of paintings and sculpture.

The system of agriculture in Germany no doubt is of the highest order at present attainable; the soil is kept in admirable condition, and is made to yield the greatest possible crops at the least possible expense (except that of human labor.) By this I do not wish to be understood as saying that labor is applied in excess, but machine labor *might* be substituted for human labor in many instances. It is, however, possible that if the wages of labor are taken into consideration, as well as the supply and demand of and for labor, that the substitution of machines for human beings would entail great want and misery. The food of the German laborer, whether artist, mechanic or farmer, is course, simple, and at the minimum rate in quantity consistent with health and strength. But the German mind, at the same time, is a free and independent mind—is willing patiently to investigate any subject. When all Europe was Catholic, this mind introduced the Protestant form of worship. It will fearlessly investigate any branch of human knowledge, without considering anything sacred ground, or that anything is forbidden it to investigate; but the great difficulty is, that it investigates everything for the purpose of elucidating principles, and not with any view of applying the results of the investigation to practical life; hence we practical Americans are perhaps too much in the habit of condemning everything German as savoring too much of the metaphysical. The Germans were first in the field of Geology; they classified the rocks and strata, named the fossils and formations, and invented a nomenclature. This is evident from the terms still in use by the earlier English and French writers; as, for instance, the terms *kueper*, *muschelkalk*, *jura*, *grauwacke*, *gneiss*, &c. But the English and Americans were the first to put the science of geology to practical purposes. The German nation is a nation of *thinkers* and logicians, and are so much occupied with the development of the mental culture, that physical comforts are to a great extent ignored. In Berlin, for example, is a gallery of paintings almost rivaling the one at the Louvre; a museum of sculpture and antiquities fully rivaling the British Museum in London; extensive and expensive libraries, operas, theatres and churches, in grandeur and magnificence barely equalled anywhere on the continent; and yet there is not, in the whole city, a barber-shop in which one can be shaved with any kind of comfort. The streets in the city are not only short and crooked, but are filthy, and emit an odor second only to what is experienced in Cologne. The beds in the hotels are simply miserable, and not a single gas light can be found in any private room or suite of rooms in any hotel in Berlin, although all the streets are lighted with gas. Daily newspapers are sold at office of publication only—there are no news depots. They have no idea of street railroads, but have great lumbering omnibuses, and thousands of cabs or "droskeys." In a word, there is everything there to promote mental culture—nothing for personal comfort or convenience; the same is applicable to every portion of Germany. In America, on the contrary, we make every art and science, so far as possible, contribute to our personal convenience and comfort, whilst mental culture is *not* ignored.

FRANCE.

Leaving Cologne, I went to Paris by way of Aix-la-Chapelle and the southern portion of Belgium. I always understood that Belgium was the best cultivated state or kingdom in all Europe; but as I had a few weeks of time only to make observations in France and Great Britain, I did not deem it proper to spend any time in Belgium, more especially as I could not see, in passing through, that it excelled Saxony, and in many places through which I passed in the kingdom, it appeared to me that Saxony was in advance. But the route through Belgium was through the departments of Liege, Namur and Hanault. Through Liege and Namur the railway passed along the bank of the Meuse, or Maas, and both sides of the river is bounded by rather steep and high hills. This Meuse valley is of the upper carboniferous series; some of the hills on the left bank being Devonian, and those on the right, of the Eocene. At Aix-la-Chapelle I for the first time in my life saw the upper chalk series; but from Charleroi (in Belgium) to Paris, along the banks of the Oise, the upper chalk and eocene predominated. Of course there would be nothing very attractive, agriculturally, in the upper carboniferous formation, especially where the minerals which it yields are in as great demand as they are in France and Belgium. The northeast region of France, through which I passed, is said to be among the best cultivated in the empire. The crops looked well, but that great care and indefatigable industry everywhere so manifest in Germany, was not observable here; it looked more like Ohio.

Arriving at Paris—which place is simply all France crystalized—my first object was to learn all about the agricultural organizations of the empire, both for state and educational purposes. From information furnished me by M. M. **Barral**, Secretary of the Imperial Agricultural Society, and Mons. **La Verrier**, a former professor at Saulsie, and sundry documents placed at my disposal, I have compiled the following on

AGRICULTURAL ORGANIZATIONS IN FRANCE.

In France the agricultural affairs pertain to the department of the Ministry for Agriculture, Commerce and Public Works, and are there managed and arranged by the Directors of Agriculture; but the improvement of the soil is under the special management of the Hydraulic Service department. Formerly the management of the national studs, and all connected with national horse breeding, pertained to this department also. In the year 1861 it was attached to that of the Minister of State, but last year to the Minister of the Imperial Court. For the support of 26 national studs, with about 1,300 stallions, 1,922,500 francs were expended in 1862, and for 1863 and 1864, 2,012,500 francs were put in the budget. For the completion of these by purchases, 500,000 to 600,000 francs are to be appropriated annually, and for premiums and contributions for the purpose of improving horse breeding in the country, 1,860,000 francs were expended in the year 1862, and for each of the years 1863 and 1864 the same amount was added to the budget.

The replanting of forests on bare mountains, ordained by the legislative act of July 28, 1860, with its supplement of this year, (for the replanting of forests and the creation of pasture lands) has been transferred to the department for the Management of the Forests, being a branch of the Ministry of Finance, which also has charge of the inclosure and cultivation of the downs. The amounts hitherto expended for the production of new forests were 638,013 francs in 1861, and 1,125,188 in 1862. For the years 1863 and 1864, 1,000,000 francs have been annually added to the budget. A large proportion of this amount has been expended in seeds and money given to communities and private individuals, for the purpose of replanting forests, in appropriations for establishing repositories of seeds and nurseries, and in defraying the expenses for the management and execution of the works. Until the year 1862 the downs were in charge of the Minister of Agriculture, but since 1863 they were transferred to the department for the Management of the forests—a branch of the Ministry of Finance. In the year 1862, 418,360 francs were expended for this purpose, and for 1863 and 1864, 500,000 francs were annually added to the budget, of which amount 417,700 francs were expended in the execution of the work, 72,300 francs for paying the salaries of the down officers, and 10,000 francs for traveling expenses, making a total of 500,000 francs. The agents of the Central Administration of Agricultural Affairs are the Inspectors General, and the Prefects the Civil Engineers for the improvement of the lands.

Inspectors General.—The Inspectors General of Agriculture, as the perpetual commissioners of the Ministry, may be regarded as the *media* through which the Central Administration despatch their emissaries throughout the country in every direction, in order to maintain a direct communication in respect to the agricultural affairs in every district. Beside a special Inspector General for the veterinary schools, and a special Inspector General for Corsica, since the beginning of the present year there are seven Inspectors General. As their assistants four adjuncts have been appointed, namely, the two directors of the imperial dairies, the director of the imperial stock flock at Haut-Tingry, and a professor at Grignon, but they perform active service only in cases of necessity. Accordingly France is divided into a corresponding number of districts, throughout which the seven Inspectors General travel every year, in order to obtain, through their own observations, an accurate and thorough knowledge of the condition of agriculture in their respective departments—of the changes and the progress made in them—of the methods in which it is conducted—of the condition of the agricultural laborers and their wages—of the use of agricultural machines—of the commercial channels—of the progress of the works for the improvement of the lands, and in general, of every thing having a bearing upon agriculture, and also to obtain correct information in respect to those localities where steps should be taken toward the improvement of lands. Further, they are to be present at the meetings of the boards of agriculture in the departments, and of the agricultural societies, to inspect every year the higher agricultural institutions, and examine especially into the condition of the forty-nine agricultural schools, to maintain an uninterrupted communication with the agricultural societies and the prominent agriculturists in their districts, and to prepare lists of the latter, in order that from among them the awarding judges at the exhibitions may be chosen; therefore they are required to travel during the entire summer. Finally, they arrange and superintend the exhibitions of fat cattle and the agricultural district fairs. They prepare minute reports of their transactions and travels. The Ministry submit to them the duty of deciding agricultural questions, and determining local affairs and interests. It is evident that the discharge of such numerous and complicated duties—for each Inspector General has the supervision of twelve departments—requires men of great ability and experience. Generally they are chosen from among those officers who have attained a certain eminence in the administration of agricultural affairs the directors and professors at the agricultural academies, the imperial stock flocks and dairies. They each receive a salary of 10,000 francs, and while traveling, a mileage amounting to about thirty centimes per kilometer. Their salary and mileage in the year 1862 amounted, in the aggregate, to 83,704 francs, but for 1863 and 1864 only 69,000 francs were annually put in the budget. At the beginning of the present year another Inspector General was added to those already appointed, and the present Minister of Agriculture, etc., insists that the Inspectors General should be traveling as much as possible.

Prefects.—As to the Prefects, it is not to be overlooked that their official sphere comprises the entire civil administration, except the judiciary department and its functionaries. Therefore, the Prefects, with their counselors, sub-prefects, mayors, general councils, and agricultural boards, as consultative bodies, and in respect to the improvement of lands, with the Civil Engineers, are to be considered agricultural agents.

Engineers.—In France the corps of Civil Engineers, forming almost a military organization, occupies a prominent position. In order to attain to the degree of civil engineer in France, every candidate must have completed an entire course of studies at the polytechnic school at Paris, then passed an examination, and acquired a higher general scientific education beside the professional; therefore this corps is highly respected, and the authorities employ them not only in managing and directing mere technological works, but also in superintending such works as require higher scientific attainments. At the head of this corps, and the administration of bridges, turnpikes and railroads, in the central department of Public Works, is placed a Director General of bridges and turnpikes. The corps of engineers consists, beside the 18 Inspectors General of bridges and turnpikes, of 167 chief engineers, with a salary of from 6,000 to 8,000 francs, 271 common engineers, with a salary of from 2,500 to 4,500 francs, and 2,355 conductors, divided into brigades, with a salary of 1,200 to 2,500 francs. These engineers being scattered over the whole of France, are also the agents for the improvement of lands by means of drainage, irrigation, drying up swamps, etc.

Other Organs or Agents of the Central Administration.—Beside these, the Central Administration has yet the following agents: the General Council of Agriculture, the Boards of Agriculture, the Commissioners of Drainage, and the Commissioners of the Herd-Book; the first named being a consultative body consisting of 100 members, have not been convened for a series of years.

Boards of Agriculture.—Every arondissement in France has its Board of Agriculture to assist the sub-prefect, consisting of as many members as there are cantons in the arondissement. The prefect appoints a prominent farmer from each canton as member for three years, usually convenes the Boards of Agriculture once a year, appoints their meetings and the length of the session, and prepares the programme of their proceedings. The Board in which the sub-prefect (in the polfectoral arondissement the prefect) acts as chairman, present their views on agricultural questions before the Government, and must state their opinion on those subjects on which the Government requires their decision, and which are partly connected with agriculture in general, and partly affected by local interests. The inspectors general have access to these meetings, are entitled to speak in them, and are required to attend them frequently, because they present an opportunity for obtaining correct information on the agricultural condition in the several districts of the arondissement, and of ascertaining their wants and means of supplying them.

The Commissioners of Drainage are composed of several high functionaries, the minister having the chair; they examine the petitions for the granting of loans for drainage purposes, and determine on the projects themselves, in the last or final instance.

The Commissioners of the Herd-Book consist of several high functionaries and projectors of manors. They cause a register of the pedigree of cattle of the pure Durham race—those imported into France as well as those bred there—to be kept in the same manner as in England.

Directors of Agriculture.—The sphere of the Directors of Agriculture in the administration of agricultural affairs comprises mainly agricultural instruction, any subjects directly or indirectly pertaining to agriculture, and the observation of the prices of provisions and of the trade in the same.

Veterinary Schools.—Great attention is paid to veterinary instruction. There exist three veterinary schools—at Alford, near Paris, at Lyons, and at Toulouse—in which theoretical and practical instruction is given in the veterinary art, and at which diseased animals are received for treatment. At the institution in Alford, enjoying the highest reputation, six professorships are established, and at the other two, five each. The course of studies embraces a term of three years; the pupils must be between the ages of 16 and 25 years, and pass an examination before their admission. At the conclusion of the term they receive a diploma, if found worthy, and then they are allowed to practice as veterinarians.

The Government maintains a number of free scholarships at these institutions, but the other pupils pay a fee of 450 francs. In 1862, the number of pupils amounted to 602, which shows a great concourse of students at these institutions, and justifies the inference that this profession is a desirable one in France and the demand for veterinarians not yet supplied. A special inspector general has been appointed superintendent of the veterinary schools, who resides in Paris, inspects the institutions several times every year, and reports thereon to the ministry. The support of these institutions required 619,227 francs in 1862. For 1863, 619,300 francs were put on the budget, and for 1864, 643,300 francs, since the salary of the inspector general has been raised to 10,000 francs, and the institution at Lyons considerably extended. To counterbalance those 643,300 francs, the receipts of these institutions, in fees from the pupils, fees for the treatment of diseased animals and for diplomas to veterinarians, etc., are estimated at 320,850 francs, which was placed upon the budget of receipts of the Ministry of Finance, so that the actual expenses on the part of the Government for these institutions amount only to 282,450 francs, of which, 420 francs were annually paid by each of the 602 pupils, or 1,260 francs for the triennial course.

Higher Agricultural Institutions.—To give a higher agricultural instruction, there are three academies, one at Grignon, near Versailles, one at Grand Iouan, in the department of the Lower Loire, and one at La Saulsaie, in the department de l'Ain. In respect to their arrangements, they differ from those in Germany. In France, the students pass an examination before they are admitted, and must become *pensioners* of the institutions, where they live, eat and sleep together, in large halls, work and receive instruction. They submit to a strict household discipline, taking up their entire leisure. For the greater portion of the day they are practically employed on the large farms connected with these institutions, and they must perform manual labor whenever the necessity for it occurs on farms, and submit to an examination at the close of every semester (half year). Rank or wealth creates no distinction. The students pay a fee of 750 francs, for which everything is furnished them, except clothes. The course of instruction extends over a term of three years. At each of these institutions the Government maintains several free scholarships. For the scientific instruction embracing the same branches as are taught at the German agricultural academies, there are employed at each institution six professors, including the directors, and a number of lecturers, who are engaged in all branches of instruction throughout France. these academies that at Grignon is the most popular in France, partly on account of its superior arrangements and collections, partly on account of its excellent director, Mr. BELLA, well known in the agricultural world as theorist and practitioner. The number of pupils at these institutions, in 1862, amounted to 67 at Grignon, to 30 at Grand Iouan, and to 34 at La Saulsie—altogether 131. For France, this number is comparatively small and shows that institutions of this kind are not frequented as their arrangements might lead to expect. The cause, in part, is said to be that the large land-owners are said to take no deep interest in agriculture, and partly, that the strict discipline to which the pupils are subjected, is avoided if possible. These institutions are every year visited and examined by a board of commissioners, consisting of three inspectors general of agriculture, who prepare a minute and accurate report. In 1862, the expenses for the support of these institutions, at each of which, besides a director with a salary of 5-6,000 francs (the professors receive each from 2,500 to 4,000 francs), the necessary number of subordinate officers and farm hands are engaged, amounted to 149,000 francs at Grignon, to 123,558 francs at Grand Iouan, and to 159,895 francs at La Saulsaie, making a total of 432,453 francs. For 1863 and 1864, 530,600 francs were annually put on the budget. The receipts at these institutions consist of the fees of the pupils, estimated at 78,500 francs, and of the net receipts from the farms connected with the same, estimated at 180,000 francs, making an aggregate of 258,500 francs, which are put as receipts on the budget of the Ministry of Finance. Thus, the actual expenses for the support of these institutions amount to 272,100 francs, without taking into the account what the farms connected with the same furnish in provisions, etc.; therefore, every pupil costs the State 2,077 francs annually. Although these institutions are very costly, yet they are indispensable for France; besides, they are the schools for the education of such young men as wish to become teachers of agriculture, or as wish to enter into the public service and engage in the administration of agricultural affairs.

Agricultural Schools.—For elementary instruction in agriculture there exist forty-nine agricultural schools, supported by the government. Their object is to educate skillful, practical farmers, who will be able to farm their own lands rationally, or to manage and superintend large manors as dairymen, supervisors or superintendents in the several branches of agriculture. *Practical* education and instruction of the pupils in the principles of the manipulations on the farm and their application, form the agricultural object. In their arrangement for instruction these institutions are nearly like the German agricultural schools, except that the latter are, perhaps, of a somewhat higher grade; but in all other respects they are widely different. In France the pupils of the agricultural schools have no fees to pay, but, at their discharge, having completed a triennial course, they receive each a small sum deposited for them. The director of every agricultural school receives, on an average, 6,300 francs from the State for the management of the same and for tuition, and to aid him in the latter he employs a sub-director, an accountant, who also acts as superintendent, a gardener and a veterinarian; besides he pays out of the above-stated sum 400 francs as a premium to that pupil who, on leaving the institution after a course of three years, receives the best testimonial at the examination. Besides, the State pays the director annually 250 francs for every pupil; but 75 francs are to be appropriated to clothing the pupil, and if the entire 75 francs are not required for this purpose, the balance is put into a common saving box, the contents of which, forming a fund for all the pupils, are distributed according to the merits of the same, and each receives his share at his discharge. It is believed that the directors of these institutions are able to defray the expenses for the support of these pupils by the above-named material aid from the State, and by the work and labor of the same on the farms attached to the schools. In all France the number of pupils in these institutions amounts to about 1,470, which shows that they are pretty popular. The proper inspector general must, every year, stay two days at each of these schools, and must thoroughly investigate their condition. In the year 1862 the State expended 708,988 francs for all these schools, or, on an average, 14,469 francs for each one of them. Thus the maintenance of each of those 1,470 pupils at the institutions amounted to 482 francs. For 1863 and 1864, 680,000 francs have been annually put on the budget for this purpose.

Lecturers (called cathedras) for Agriculture.—In several of the larger cities, namely, Rodez, Besançon, Guimper, Toulouse, Bordeaux, Nantes, Compiegne and Amiens, there are persons appointed to deliver lectures on agriculture. The State contributes toward supporting them, and expended 21,500 francs for all of them in 1862. For 1863 and 1864, 18,300 francs were annually put on the budget, making, on an average, 2,033 francs for each of them.

Agricultural Colonies.—These are benevolent rural institutions for the education of poor children and orphans. They receive material aid from the State, and for each of the years of 1863 and 1864, 30,000 francs were put on the budget.

Imperial Stock Flocks and Dairies.—Besides the above-mentioned educational institutions, the Imperial stock flocks and dairies belong to this category. The French government maintains *two Imperial stock flocks*, one of which is at Haute Tingry (Pas de Calais), and the other at Champbois, near Champlitte (Haute Saône), the flock formerly kept at Gevoalles having this summer been removed to the latter place; and *two Imperial Diaries*, one at Corbon (Calvados), and the other at Saint Angeau (Cantal). These establishments are said to be model institutions, and animals of the best races are kept there, in order to exhibit their types before the eyes of the cattle breeders, and to aid in spreading good races of cattle throughout France. Therefore public sales of breeding animals take place at these institutions every year. They are under the direct control of the government, and under the administration of special directors. Their usefulness are fully appreciated in France, and the sales of breeders are largely attended. The expenses of maintaining these institutions, during the year of 1862, amounted for the flock at Tingry to 45,272 francs; for that at Gevoalles to 25,000 francs, making, altogether, 70,272f; for the dairy establishment at Corbon to 50,000 francs, and for that at St. Angeau to 36,200 francs, making, for both together, 86,400 francs, and for all four institutions 156,674 francs. For 1863 and 1864, the sum of 119,100 francs were annually put on the budget.

The receipts from these sources, which are derived chiefly from the sales of stock, and put as such on the budget of the Ministry of France, have been estimated for 1864 at 52,000 francs from the flocks, and at 96,956 francs from the dairies, making a total of 148,956 francs, so that the actual expenditures for these institutions would amount only to 50,144 francs, which is but a small amount, since France attaches much value to these institutions, and surely is an evidence of their economical administration.

In reviewing the above statements of the amounts expended in the various branches of the agricultural organization in France, we find that the French Government appropriates nearly 13,500,000 francs annually in furthering the agricultural interests, besides the expenses of the central administration. In the year of 1859, 10,531,841 francs were expended for this purpose. In the budget for 1864, these expenses are estimated at 13,275,000 francs. Table A shows a considerable increase since 1859. This table is taken from the general budgets, and, therefore, gives a general statement, especially in regard to the chief item, No. 1. In order to give a detailed review, table B shows the amounts actually expended for the several *individual* branches, in 1862, according to the definite budget of the administration for that year, and also the respective estimates in the provisional budget for 1863 and 1864. In the same table several smaller items will be found which, being only of secondary importance and requiring no special explanation, have not been described.

TABLE A.—*The French General Budget for Agricultural Purposes, for* 1859 *to* 1864, *inclusive.*

State Expenses.	Definite Budget in Francs.				Provisional Budgets.	
	1859.	1860.	1861.	1862.	1863.	1864.
1. Agricultural instructions, and appropriations for the encouragement of agriculture	3,012,240	3,098,518	3,140,348	3,032,093	3,027,800	3,027,000
2. Veterinary schools	603,579	616,422	617,905	619,227	619,300	643,300
3. Appropriations for aiding in cases of material losses by accidents	1,999,794	1,511,113	2,879,789	1,412,870	2,073,500	2,083,000
4. Drainage and irrigation—costs of the proper preparatory works, and material aid	408,382	494,565	489,110	506,860	500,000	500,000
5. The drying of swamps, irrigation operations, and other improvements of lands, and enclosure and cultivation of lawns	1,272,193	1,253,024	2,294,872	2,503,775	1,200,000	1,450,000
6. Cultivation of uncultivated commons, under the law of July 28, 1860	....	....	....	....	100,000	100,000
7. Appropriations for the furtherance of drainage	97,888	95,284	111,086	95,850	150,000	100,000
8. Entrenchment and cultivation of downs 9. Replanting of forests on bare mountains } Admin. of Forests	....	....	638,013	1,125,188	1,000,000	1,000,000
10. National studs } Administration of the Ministry of the Imperial Court.	1,871,098	1,937,043	1,819,000	1,922,500	2,012,500	2,012,500
11. Completion of the national studs, and appropriations for the improvement of horse breeding } Administration of the Ministry of the Imperial Court.	1,226,667	1,676,280	1,260,000	1,960,000	1,860,000	1,860,000
12. Expenses of the general agricultural exhibitions at Paris in 1860, and at London in 1862	....	1,257,106	....	74,418	....	....
Totals	10,531,841	11,939,355	13,250,123	13,570,641	13,042,300	13,275,800

The French Special Budget for Agricultural Purposes, for 1862, '63 *and* '64.

	STATE EXPENSES.	1862.	1863.	1864.
		Francs.	Francs.	Francs.
1.	Higher agricultural institutions	432,453	530,600	530,600
2.	Agricultural schools	708,988	680,000	680,000
3.	Special cathederß for agriculture	21,500	18,300	18,300
4.	Agricultural colonies	3,200	30,000	30,000
5.	Imperial flocks	70,272	199,100	199,100
6.	Imperial dairies	86,400		
7.	Inspector General	83,704	69,000	69,000
8.	Expenses of exhibitions of fat cattle, and of district exhibitions	790,896	1,500,000	1,500,000
9.	Expenses in visiting and examining those farms, the proprietors of which have competed for premiums at district exhibitions	35,087		
10.	Subventions to the agricultural societies	576,606		
11.	For establishing nurseries in Corsica	5,400		
12.	Appropriation for furthering the breeding of silk worms	34,490		
13.	For a special agricultural mission to China	19,606		
14.	Expenses for special agricultural investigations	25,135		
15.	Miscellaneous expenses, printing, purchase of books, &c	138,356		
16.	Veterinary schools	619,227	619,300	619,300
17.	Contributions in cases of material losses by accidents	1,412,870	2,073,500	2,083,000
18.	Drainage and irrigation—costs of preparatory works, and contributions	506,860	500,000	500,000
19.	For the drying of swamps, irrigation and other improvements of lands	2,503,775	1,200,000	1,450,000
20.	Cultivation of barren commons, under the law of July 28, 1860	....	100,000	100,000
21.	Appropriations for furthering drainage	95,350	150,000	100,000
22.	Entrench'nt and cultivation of downs Admin. of forests.	418,360	500,000	500,000
23.	Re-plant. of forests of bare mount'ns.	1,125,188	1,100,000	1,100,000
24.	National studs	1,922,500	2,012,500	2,012,500
25.	Repletion of the same, and appropriations for the improvement of horse breeding	1,860,000	1,860,000	1,860,000
26.	Expen. at the general exhibition at London, 1862.	74,418	....	....
	Totals	13,570,641	13,042,300	13,275,800

HORSES.

In the city of Paris is perhaps the best place in all France to study the French horses. In the carts and drays in the streets are seen the heavy "Boulonaise," "Normandy" and "Percheron" stallions; in the Place de Carousal may be seen the cavalry horses, and in the Bois de Boulogne the carriage and blooded horses. Those who are at all familiar with French history, especially in modern times, will remember the difficulties in France to obtain good cavalry horses; whole divisions were sent to Germany to be equipped there, and they gladly accepted any and all kinds of horses. Since the termination of the French wars, France, notwithstanding, continues importing horses from England and Germany, and a very large proportion of the French Cavalry are to-day mounted on German horses; and the German horse is one upon which they rely for artillery. France appears to have an abundance of draft and farm horses, but is greatly deficient in lighter breeds, especially as compared with England and Germany.

Two strains of horses mainly are imported, viz: saddle horses from Germany and England, and strains of light draught from the south of Germany; but with all these importations, the supply is not equal to the demand. The limited space which this report will admit, necessarily excludes a detailed account of horse-breeding and its history, although it is most instructive as to what has been accomplished, and yet is in progress, in the production of horses. I will, therefore, limit myself to a few sketches of the strains of French horses which are so numerously and faithfully represented upon the streets of Paris.

According to his particular occupation or fancy. every one will feel interested in the stout, powerful roan horses attached to the omnibus, the small hack or cab horses, which stand with drooping heads and shaggy hair on the streets day and night, or pass by in a slow trot, the collossal animals hitched to the stone and rubbish carts, or in the elegant steeds which, between two and five o'clock in the afternoons, fly over the course of the Champs Elysées and through the Bois de Bologne. We will look at these various classes of horses:

I.—THE OMNIBUS HORSES.*

The immense travel within the city limits of Paris employs most generally the omnibus as its means of conveyance. These belong to the "Compagnie Imperiale des Omnibus de Paris." It runs 31 lines through Paris. The horse-track street car road, running from the square "le Concorde" to Versailles, is their property also.

For six sous† one can ride from one end of Paris to the other, and to any place in the city. Although this is a low rate of fare, and for the immense amount of equipments and appointments employed 8,000 horses are kept, yet the company do a good business, if we may judge from the rate at which their paper is accepted at the Bourse. This favorable result is chiefly owing to the excellent order prevailing in all the branches of this collossal establishment, and the strict management of their affairs.

The company possesses about thirty-six depots in various parts of Paris. At the head of each depot is a chief who directs and controls the hostlers, attendants, drivers, smiths and conductors, and has charge of the wagon materials, the horses, of which there are, at times, five hundred at one depot, and the forage stores. These depot-chiefs are under the supervision of inspectors, and these again under that of the Central Administration, at whose head there is a Director General.

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* Mail coach horses, in the more comprehensive sense of the term.

A sous is about one cent.

Every one should visit such a depot. They are well kept and managed, and much of the care and management of horses may be learned there. The stables are clean and kept in good order; the horses are promptly fed and tended (their rations being 16 lbs. of oats, 8 lbs. of hay and 10 lbs. of straw), and are in fine condition. This is the more praiseworthy as there is only one hostler for every twelve horses. For his services he receives three francs per day without board; this is low wages, considering that in the vicinity of Paris a day-laborer receives 2.50 francs in winter and six francs in summer. A very judicious arrangement is made in all these depots, namely, that the horses for the night service (from 5 o'clock P. M. to 12½ o'clock A. M.) are kept together in separate stables, but remain undisturbed in day time.

The drivers and conductors (each omnibus has its own) receive four francs, but after they have been three years in the service they receive 4.75 francs per day. These men have a very hard and unpleasant situation, being day by day almost constantly employed from seven or nine o'clock in the morning (in summer from six o'clock) till half-past eleven or half-past one o'clock at night, but between every two trips they have a rest of eight minutes, and a little longer one for breakfast and dinner. Every four days they have one holiday. Every one of them is obliged to give security in the sum of 200 francs, and every driver is responsible for any damages done through his fault or neglect to his own or other wagons, and the conductor is responsible for any money lacking at his settlement in the evening. Besides the above-named employees at such a depot, there are blacksmiths, who shoe all the horses and repair the wagons; also the so-called *relayeurs*, a portion of whom change the horses at the omnibus stations, or are waiting from seven o'clock in the morning to seven o'clock in the evening at elevated places, with additional horses.

The omibusses are real monsters. They have twelve seats on the *imperiale* (top) and fourteen inside, but are intended to contain sixteen. The fore wheels of the wagons are made larger to alleviate the work of the horses.

An omnibus weighs twenty-two cwts., and can accommodate twenty-eight persons; yet it is not crowded, and often there are children inside, so that fifty cwt. may be estimated as the mean weight of it. This large weight is drawn by two horses, and another horse is attached only at the steeper elevations, and this at many places only until seven o'clock in the evening, although the traveling does not perceptibly decrease by that time. The average speed is eight kilometres* in an hour, including the innumerable stoppages to let the passengers in or out.

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* A kilometre is 1,093 yards or five-eighths of a mile.

The length of any omnibus route may be estimated at six kilometres. Each pair of horses travel that distance on one day, twice in going and returning—*i. e.*, twenty-four kilometres—and on the next day only once, going and returning, making a mean distance of eighteen kilometres (more than eleven English miles) per day, and this always in a trot with a weight of fifty cwt. to pull, which, in rainy weather and in winter, is hard work. But the hardest for the animals is the frequent stopping which the drivers effect in the roughest manner, and which wearies them more than the actual draught. But fortunately they have not many steep elevations to asscend, as, *e. g.*, in the Rue des Martyrs, where the omnibus is stopped, without checking contrivance, by the horses alone, in which the driver aids them only by letting the wheels graze the curb stones of the sidewalks.

Despite of all these exertions, one sees the animals, the very pictures of power and strength, pull their two-story structure along without any difficulty. One word from the driver causes them to stop short, and another to start again at once; and he rarely has occasion to apply the whip. If well fed and tended, they seldom are sick. Fever and colic are the principal diseases, and which are difficult to avoid in horses standing in exposed places and street corners in any weather, and covered with the foam of their sweat.

They are purchased by three reliable dealers who are engaged in this business during the whole year. They exhibit the horses before a commission, and when they are accepted by it, the dealer receives ninety francs over and above the purchase price per head delivered at the stable. The price ranges from 700 to 1,100 francs, but most of them cost 850 francs on an average. As a rule, five year old animals are purchased, and kept till their tenth year; but one frequently finds older horses, and even up to seventeen or eighteen years old.

They are, as at first stated, generally stallions, for in the larger portion of France it is not customary to castrate working horses; and another reason is, because no domestic race produces geldings which, at the same cost price, could perform the same labor or endure the same treatment as these horses.

The chief rule in reorganizing the business in December, 1860, was to open a market for French horse-breeding. The leading principle was declared to be to open a market for geldings. To that end the government makes every possible effort. The horse breeders are informed of all the theoretical and practical reasons in favor of castration. They are told what injurious effect the many bad stallions have upon breeding, since the nearest stallions are frequently used as breeders, to save trouble, time and money. It has been proved by statistics that the 12,000 horses which, after a deduction of the exports, have been imported annually for the last few years, were nearly all geldings, and that nearly five hundred men are every year injured or killed in France through the unmanageableness of the stallions. Even considerable premiums have been offered for castration, and besides, the extensive omnibus establishments and mail lines have given public notice that in future they are very willing to use geldings, as soon as they can find suitable ones for their respective services.

But in spite of the extensive means employed and the strenuous efforts made on the part of the Government, yet many a year will elapse before this end will be accomplished, and the "Percheron" stallions will not rapidly disappear from the omnibus. In general, they are stout, square-built animals,* with a large, often expressive head, a heavy, generally well-formed neck, an abundant mane, short, somewhat abrupt, fleshy loins, often with a depression along the back-bone, a pretty strong hind-quarter, which appears stronger than it really is, because the tails of these horses are constantly tied up; the legs are often too light in proportion to the body, the muscular system also might be stronger, and the back is often defective. Their color is generally a gray, chestnut-brown and sorrel.

By the name of "Percherons" the Parisians understand all omnibus horses and, in general, horses of this size and weight, especially when they are gray horses. To a casual observer they appear all to belong to the same race; but when he examines them more closely, he will doubt this, especially when he learns more of the race and breeding of the Percherons.

The Percherons come from Beauce and Perche. Formerly they used oxen there, and the race of the Percherons, therefore, is naturally not only not an old one, but the latest of all French horses, artificially produced by select breeding, by moderate work, and chiefly by plenty of good food. The Bretagne draft race and several varieties of the Boulogne race which were, by chance, brought together here on neutral ground, were reared separately, and under natural local influences now developed a new tribe which, with their forms and exterior appearance, their powers and special qualities, is found nowhere else, although many attempts have been made at producing them in France and in foreign countries. In those regions every farmer keeps many more horses than he can use, and is very careful in selecting the stallion for his mares; a good farmer in Perche will select a genuine Percheron stallion only.

Formerly the Government had placed English thoroughbred stallions at its stations in Beauce and Perche which were continually used in crossing by individuals; the result, of course, was unfavorable, for the colts were animals of much "*blood*," but with high and thin legs, and without bottom. Then the farmers as constantly rejected the English stallions, and their suspicions or prejudices against anything foreign was so great that the Government was compelled to place Percheron stallions at its stations. The reorganization of 1860 changed this again; they started on the principle "that heavy draught horses cannot be propagated except in regions where they are developed almost by themselves under the peculiar influences of the soil and climate. For the improvements of the agricultural implements, the more perfect structure of the wagons, (!) the demand for greater speed, and the *impending* improvement of the country roads (they are worse in the environs of Paris than I noticed anywhere in Germany, and their connections are very defective), render them unnecessary; but on the other hand, it is the duty of the State to try to produce horses of medium size—horses *a deux fins* (for two purposes), suitable for both agriculture and the saddle. Therefore, the State keeps no more heavy stallions, except the very heavy Bretons, Boulonnais and Ardennais, but furnishes for the other draft races the English full-blood and half-blood only. The same is the case in Perche were *alternate* crossing and the gradual bastardizing with English full-bood stallions, even to half blood, have produced excellent horses, rather light, but very powerful, and suitable for speedy draft.

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* See ante page 51.

In the Percherons various subdivisions may be distinguished. The "fine Percheron," chiefly in the departments Eure and Loire and Loire and Cher, is a powerful, fiery animal, very well fed from its youth up, with oblique shoulders, long croup and projecting hips; very fine specimens are found in the cantons d'Illiers, Courville and Chateaneuf, where they are fed as much oats as they can eat.

The "heavy Percheron," on the Orne, Sarthe and Eure, is nothing less than a fine or well-built animal, but a horse renowned for heavy draft.

The "small Percheron," in the West, in the vicinity of Aigle and Mortagne, is much smaller and lighter, has straighter shoulders, a shorter croup, hips more level than the fine; yet he is a solid and useful horse, but not very fast.

The "small Percherons" are found in large numbers in the omnibus stables, but a few only of the "fine," because they are used by the Administration. The latter are more frequently seen in the mail omnibus conveying the letter-carriers to their respective districts; and in private wagons.

The Percherons are mostly dapple-gray, and while young, iron-gray.

Having spoken of LA PERCHE as the country producing renowned, powerful horses, it is proper to speak of it from another stand-point which is of greater importance; I mean the rearing or bringing up of imported horses, in which Beauce and Perche are engaged on an extensive scale.

Being situate between provinces a portion of which produce many horses, and the other portion consume many, la Perche has become a kind of depot, where the qualities of the horses are improved, before they are hitched to the mail-wagons, in all France.

A landed proprietor who formerly sold one horse every four years, now purchases many in the Vendée, Poitou, Bretagne, Normandy, Picardy, and even in the Champagne, Burgundy, Vivernais and Franche Comte, having chiefly regard to the color—dapple-gray. He keeps these animals, and after he has fed them well for that length of time, he sells them with his own Percherons bred by himself, and as such, whilst they in fact are only "percherized."

Thus the comparative rarity of genuine Percherons is explained, and also the fact that all these "percherized" races are taken for Percherons; and this may be easily understood, when we consider how the Percheron race has been artificially produced, and when we further consider that in all these races Percheron stallions have been used as breeders possessing, as all experiences in France have shown, by far too little constancy and ability to transmit their qualities, to improve a common race. This is quite natural; for when a common race (and such are the Percherons) is transplanted from its native country to another region, it will change without improving the race in the latter region. He who wishes to import Percherons, will proceed in the safest way, when he selects stallions and mares in the district of the genuine breed, in the vicinity of Montdoubleau and Mortagne, where a fine animal, bred by a reliable breeder, may be purchased for 3–4000 francs; but removed from its native districts, the race will not be preserved long.

The great mass of omnibus horses consist of these "percherized" animals, and we will briefly speak of the races furnishing contingents to them.

As to numbers, the Bretons occupy the first place. These we understand to be the valuable mail coach or diligence horses, found along the whole sea coast, from Fougères to Brest.

On account of the local conditions of their native country, they have kept almost entirely such as they have been described centuries ago—rather small, thick set, stout body in proportion to height, broad chest, thick and low withers, strong neck, long head, short sloping croup. Chief characteristics:—very broad forehead, the nasal bone being considerably elevated, the head is very narrow beneath the eyes, the croup projects like a semi-circle, extending from the top of the hips towards the middle, and the muscles forming this circle ascend over the hips and make them quite level. The shoulder is often too steep, the fore-arm too short and thin, and the tendons might be stronger in general; the limbs might be more powerful in proportion to the body. Their trot is very fast, but the legs are too close together; their temper is that of inertness, on account of the food they receive and the climate on the coast, unless they are fed grain while young. As to color, they are mostly grey; in some districts a reddish roan or flea-bitten grey.

The "percherizing" of these animals is practised, not only because they are weak in consequence of insufficient feeding, but because in Bretagne horse breeding is subject to a terrible evil—a periodical inflammation of the eyes, or moon blindness. When six to seven months old, the foals go into the district of Morlaix; at the age of one to one and a half years, into the departments of Côtes du Nord, Ille, and Villaine, etc., later into those of Sarthe, Orne, Eure and Loire; in these three latter countries the rearing of the horses exported from Bretagne is completed, before they are spread abroad as mail horses throughout France.

The Norman horses being smaller, belong to the "postiers," which are spread in the north, in Mayenne, Orne, Ille and Villaine, and stronger and larger in the southern portion of La Manche; being mostly brown or sorrel, they have the Norman ram's head, are rather tender, but faster animals than the Bretons, but are not as good for the omnibus service, on account of their long back. They are frequently crossed with the neighboring Bretons and Percherons, and are gradually disappearing.

The old province of Poitou has three entirely different soils, and consequently three different horses. The *Bocage*, where grain has always been grown, produced in her poorer portion, the Vendée, small, vigorous, but hardy horses, which, when well fed, make excellent light cavalry horses. In the more fertile districts of the Doux Sèvres, the horses of the Becage are finer, stronger and larger, and produce, when crossed with English-Arabian stallions, very elegant saddle horses. The inferior stallions of these two sub-divisions are partially exported to La Perche, partially to the departments of Yonne, Loiret and Nièvre.

The second race of Poitou is produced in the dried swamps of St. Gervais.

The third race, the *Poitevins* proper, are produced in the Marais de Deux Sèvres, and that of Laçon, from Melle to Laçon and St. Hermine. They are dark brown, large, long legged, having a heavy body with badly set hind quarters, very bad croup, immense head, wide flanks, rough bones, feet almost wholly covered with hair, broad hoofs, coarse but very luxuriant mane and tail—the genuine production of a soft soil, moist climate, and luxuriant but too hard and fibrous fodder. Being in themselves very indifferent working animals, they are very useful for draft if, at an early age, they are taken into Berry, and thus escape the noxious influences of their native country. The greys among them go as a rule to Perche and Beauce, and at the age of five to six years are sold as very efficient mail coach horses. The others go to Burgundy, the Saintange, Nivernais, and even Auvergne.

If the mares have broad hoofs, considerable hair at the feet, a cowlike belly and a depressed back, they are used for mule breeding in the southern districts. Of all mares, these are surest to breed to the ass; and although the race has somewhat changed, not so much through the influence of the stallions of the State as through the improvement in agriculture. They have a wide chest and a fine muscular development in the hind quarters, and produce the best mules in the world, and therefore they are better known by the name of "chevaux mulassiers" than by that of Poitevins.

The old *Picardy* race, which was very bad, has now almost disappeared. At present the Picardy produces a very good strain of horses, (le cheval rimeux) and these descend from English, Norman, Percherons, Belgian and Bologne stallions. But she imports many foals of the Bologne race, which get a thick belly, depressed back, weak limbs, and grow clumsy where the fodder is still bad, and is therefore given in large quantities. Thus they resemble the old race, and, like those, are called "horses of the poor land," or "carrot eaters."* But these horses, if they are not sent too late into La Perche, will greatly improve and become valuable mail horses.

The *Champagne*, except *Champagne Pouilleuse*, where the chalk stratum is very thick, is a very fertile country, and therefore does not largely engage in horse breeding. Very common horses, with a thick head and big belly, are at home on the Upper Maas or Meuse. The lighter ones, on the low lands of the Marne and Aube, are partly used for cavalry and partly for draught horses. Many foals from the valleys are sent upon the plateaux of the departments of Aube, Seine, Marne and Yonne, and the better ones of these further to Beauce, where they are afterwards sold for Percherons.

In the *Andennes* there existed formerly a nervy, hardy, not elegant race of horses, but very suitable for light cavalry, which had sadly degenerated by crossing with Flemish horses, about 1830. Afterwards they crossed with English full-bloods and English-Normandy half-bloods, and they gradually produced partly "*caroniers*," partly mail horses, suitable also for artillery service. The finest mail horses are found in the arrondisements of Rethel and Vouziers, where the farmers also buy one year old foals in the markets of Namur and Givet, heavy and thick bellied, which through the fodder and care (which are very defective) become quite different animals from the Belgian horse, which does not leave its native country.

Besides mail horses, the Ardennes produce also small "bidets," formerly so frequently seen in the light carriages at Paris, as well as another and heavy race.

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* These terms became more improper every day, and actually have now only a historical meaning.

The *Burgundy* horses resemble the horses of the Champagne in the north and the Camtois in the east and south. They form no special race, for the Burgundy horse proper, a very low, vigorous and hardy animal, has almost entirely disappeared, and in their country there originated crosses with Percherons and English-Normandy half-bloods. They have lost their reputation. On account of the fertility of the soil and its extensive culture, they are at an early age exported to the west, and thus become good mail horses.

The *Nivernais* are at home in the departments of Yonne, Loiret and Nievre, which have a fertile soil and a mild, rather moist climate, on account of the extensive woods. They produce a large number of good, strong horses, similar to the Percherons, but less elegant, perhaps, on account of the climatic conditions, and also because they are not selected for breeding with the same care as in La Perche, the one district being more engaged in breeding, the other in rearing. At the age of two years the horse foals generally go into the western provinces; the mares remain in the country. Only the most common and cheapest, especially from the Serien valley, are used for such breeding in the departments of Lozere, Cantal, Aveyron, Tarn.

The native districts of the *Camtois* are in the Chalk Mountains in the departments of Ain, Jura, Daubs, Haute Saône and the plains from the sources of the Saône to the Reyssouse. In these regions, formerly, an excellent race existed, with fine forms and strong muscles. They disappeared entirely during the war at the beginning of this century, and later became a common, heavy kind of animals, intermediate between the lighter and better built Bretons and the stronger, more clumsy Boulonnais—long, a depression in the back, thin neck (caused by early castration), abrupt, but broad and even croup, weak limbs, bad sinews. Yet they are capable of performing more work than their appearance indicates, and were very valuable animals in the times of "teaming." It is a remarkable fact, contrary to all experiences anywhere else, that here the plateaux on the mountains produce the heavier horses, and the valleys, especially that of the Saône, the lighter ones; but this corresponds fully to the quality of the food, which is more strengthening and nourishing on the mountains than in the gravely and very moist valleys. Many foals are imported from the canton of Berne, and, *vice versa*, six to eight months old animals go hence into Switzerland, and afterwards are brought back as Swiss horses. The better ones go into the plains of the Saône, remain there twelve or fifteen months, and then are sent farther into the basin of Paris, the departments of Seine and Marne, and Seine and Oise. There they are well fed, and then, according to their size, are taken either for Percherons or Boulonnais.

In their native country they are also used for mail horses; mares for mule breeding go into the departments of Aveyron and Cantal.

Now we have described the various races which are used in all France for the omnibus and the mail service in general. Those we have named are found exclusively in the omnibusses in Paris, but the stage coaches, especially in the east and south, are drawn by other strains, horses which no longer correspond to the Parisians' ideas, and, as to the value and extent of their production, they are far inferior to the races named, whose large numbers fill the statistical tables.

Thus, the better stallions, as we have seen, are "percherized." The smaller portion of the inferior ones are used as relay horses before the heavy two-wheeled carts, while the larger portion, together with the mares, form the great mass of farm horses of France. They are castrated late, in order that they may retain a proper horselike bearing.

In general, they are good and useful animals, but most of them are too small, too heavy, not fat enough, and often not well built. Therefore, as stated in speaking of the Percherons, the government intended to transform them all into larger, lighter and faster, but at the same time very powerful and solid breeds, suitable for the mail and farm service, for the line and heavy cavalry.* A horse of this breed, lately produced, may be seen in the Imperial stables. In the arrondissement of Argentan, Normandy, there existed a quite common Norman race, which they improved in the beginning by stout, heavy stallions, produced by crossing Augerons with Percherons possessing some blood. The productions were large, powerful, agile, enduring, energetic animals, which are almost exclusively used in very hard mail service of the Imperial House.

The accomplishment of that great plan was essentially facilitated through the better cultivation of forage plants and the improvement of the soil and agriculture in general, so that the conditions and circumstances under which they were badly reared and poorly fed, and consequently many races had a weak and faulty constitution, have ceased to exist. Further, all of these races have been injudiciously crossed with Breton, Norman, and chiefly Percheron stallions, so that the type of the race has frequently disappeared, and thus they can not possess any power of resistance against the constant infusion of better blood. But the latter is the very thing which is wanting; for the State does not possess a sufficient number of stallions, and many of those in its possession are unsuitable.

The State possesses an aggregate of twelve hundred stallions—English, Arabian, and English-Arabian full bloods, English-Norman and English-Arabian half bloods, and a few heavy ones. Since 1861, no pains and expenses were deemed too great in selecting these animals, so that, for instance, 50,000 to 60,000 francs have frequently been paid for English thorobred stallions that had faultless structures and showed great speed and endurance on the race course. The State will have none other than the best animals, such as very few private persons are able to purchase; and therefore she can not meet all the demands, for there are 600,000 brood mares in France. Hence she favors the stationing of department and community stallions, and authorizes such, *i. e.*, designates them as good breeders and awards premiums to them, the highest figures of which are 3,000 francs for full blood stallions, 1,500 for half bloods, 500 for heavy draught horses. Mares with foals receive premiums also, amounting to 600f. for full bloods and half bloods, and to 300 francs for draught horses. Large sums are expended in this way. Thus the races are to be essentially improved by in-and-in-breeding, which is a great step forward, for strong and faultless mares are brought to the best stallions of the State.

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* The heavy cavalry use different horses at present from what they did formerly; for if they can not move fast enough, they are lost before they meet the enemy.

All these arrangements existed long ago in most German countries, and they are not new even in France; and I mention them to show the interest taken in the improvement of horses by the State at the present time.

I mentioned that France does not have the proper kind of stallions requisite for the intended improvement of common races—the strong-boned, large, broad English half bloods. I will remark here that in 1832 they came very near establishing an excellent constant race (but now even single individuals are rare); that, although the government does not spare any expense to procure them, and does everything in its power to improve the breed, yet, on the other hand, it is to be feared that it has not yet made sufficient progress with the jockey club (full blood mania) which is absolutely necessary for the accomplishment of the end proposed. In inexperienced hands the full bloods are a dangerous material, because they can not satisfy the popular demands; but it is doubly dangerous to cross with races whose limbs should be stronger in proportion to the body.

The administration retiring in 1851 fully understood this. It had the correct idea how to improve and change the races mentioned, not after the type of the English-Norman horse, but after that of the Norfolk trotter, *i. e.*, it desired to obtain the type of a mail horse and a working horse for farmers—a new horse, good for all purposes, for the saddle and harness, about 61 inches high, with thick, low shoulders, in order that the collar might fit the better, short, stout body, some distinction in the foot-tuft hair and croup, broad, strong limbs, fine stature and proper energy. It (the government) intended to effect this change by using the Anglo-Percheron horse as breeder for all these races, and this horse produced them himself by a gradual, very slow process of bastardizing with the most powerful

English full blood, continuing until half blood. Then the same new organization came which did not want anything, or, as the French say, aided *a la ficelle*, and the work, barely properly commenced was wholly abandoned.

II. CART HORSES.

In transporting any bulky mass or coarse and heavy material, the French use heavy carts, resting on two very large and broad wheels, such as are seen in large numbers in Paris in all quarters where buildings are being erected. Not only the rubbish and stone carters, &c., but also the farmers use these carts exclusively, and stick to them with a prejudice and obstinacy worthy of a better cause. They are abolished at the celebrated agricultural school at Grignon, but none of the large and famous manors in the vicinity have followed this example. The disadvantages of the heavy carts must be manifest to every one. I can only remark that they are loaded very carefully and in strict equilibrium; otherwise the thill-horse would be borne down to the ground or drawn up into the air, which frequently occurs on sloping roads, or even in driving over low ridges. The burden loaded on a rubbish or stone cart ranges from 120 to 140 cwts. To such carts from one to six or seven and more horses are hitched in *tandem* style. The fore horses are stallions of the races mentioned, but the thill horse *(limoniers)*, of course, must be much larger and stronger, for they are subject to constant concussions, have more to pull up hill and alone to hold back down hill. France possesses three most excellent races of these cart horses proper, which seem to be superior in power and energy even to the heavy English horses. The most famous of them are the Boulonnais.

The country of this large family and from whence it is exported is the limy clay soils of Boulogne, where it numbers about 350,000 head. The mares are kept at home, while horse foals are scattered not only in the departments of Pas de Calais, Somme, Infèrieure, and Nord, but also in all neighboring districts, where such mighty live motors are required for the hard work in manufacturing establishments or in heavy soils. They are called Race Bourbourienne in le Nord; Cauchoise or horses of the good country in Eure and Loire, Eure and Seine, Infèriene; Picarde or horses of the poor land (a term without any proper meaning at present) in the department of Somme.

Besides, the same race is produced in Normandy under the name of Augerons, or Virois, or Caënnais, in the department of Picardy under the name of Vimeux and as Hamands in Artois and French Flanders. Many authors distinguish all these as separate races, but others consider them to be members of one family. The latter seems to be the more correct view, for distinctions of race are nowhere to be found, and now less than formerly, when the local conditions were quite different, and essentially modified the structure and temper of the animals. But a distinction must be made between the races suitable for draught in trotting, the Boulonnais proper and the Hamands and Picardies pulling only in walking or pacing. The Boulannais are fed plenty of grain from the earliest period of life, become muscular and agile, more energetic and less massive than the Flemish, which are doomed to a walking pace on account of their clumsiness and inertness. The following is a characteristic description of the Boulannais: Mostly 1.66 metres* high, very stout but short body; heavy, expressive, straight head, well carried by a powerful yet elegant neck, with luxuriant double manes; very broad chest; full, soft, fleshy shoulders; thick, not always high withers; back somewhat depressed, but short; fine loins, very fleshy and sloping; uncommonly large muscles on the thigh; strong, broad tendons at the knee and hock; strong, long forearm; short and powerful shin bone; fine skin and mane; little hair on the legs, which is very rare in animals of this kind; color, gray, brown. They are broad, short, thick-set, well-proportioned, athletic animals, which may be put at work at an age of eighteen to twenty months, and have their full vigor at five years.

In the Picardy their general feed is hay; hence a thick, coarse skin, clumsy feet, less powerful form; are larger and longer legged, not so muscular and energetic. But these animals are becoming rare, since the race has been essentially improved during the last twenty two years, and is now very valuable.

When well fed they have a wonderful strength. Thus Mange, the director of Alfort, relates of an Augeron which he saw in a cart loaded with 240 cwts. stone, and besides the animal was burdened with a weight of 1,430 lbs. of collar, harnass and saddle.

Although they are heavy, the Boulannais have a quick step, and one is astonished to see how their limbs are developed in trotting. Before the railroads were built, they brought the *marée* (fresh sea fish, oysters, &c.) regularly to Paris, and traveled about five miles per hour.

At Paris we may observe how these smart animals can suddenly hold back and stop in a throng or crowd, whenever there is any thing in the road, and then pull again and go slowly and cautiously round the corners, and all this of their own accord, the driver leading the foremost horse, and seldom looking back at the others.

The smaller individuals of this race are excellent mail horses. The heavy ones are suitable for brewers, millers, stone and rubbish carters, freight carriers and for towing boats or vessels.

The heavy Bretons are found along the whole northern coast of the peninsula. The cradle of their race and the central point of their production are the arrondissements of Brest and Morlaix. They vary from gray to dapple-gray with intervening shades; are five feet one inch to five feet four and a half inches high; have a large, heavy, fleshy head, often with a snub nose; large, protruding eyes; large lower jaws; a heavy neck with double mane; heavy, straight shoulders; round belly; short, broad loins; muscular, short, broad, double, sloping croup; full, deep-set tail; powerful limbs, especially in the upper parts and chiefly in the hock, but bad sinews, neither strong enough nor properly separated from the bone; short, strong, hairy fetlocks; large, broad hoof. They are strong, energetic animals, capable of enduring the most strenuous exertions. An excellent variety of them is found between St. Malo and Lannion.

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* 1 66-100 metres is equal to 5 feet 5¼ inches, or nearly 16¼ hands high.

The Ardennean-Belgean heavy race, in the valleys of the Maas and Mosel, is five feet three inches to five feet five inches high; has a fine head; a strong, not ungraceful, but short neck; low withers; the back lower than the croup, which is sloping; is broad in the hips and in general in the hind quarter, and therefore is very strong and hard to tire; it has a broad chest, of sufficient depth; large shoulders; a very muscular forearm; a wide knee; a good hock, but not marked and dry enough. They are probably of the same origin as this Flemish race, and are, like these and the Bretons, suitable for draught in walking only.

It is probably owing to the above-mentioned peculiar form of vehicle, that these large and uncommonly strong animals are yet found in France in such large numbers, but another reason is that the French have a strong predilection for them.

They intend to preserve these three races perfectly pure by in-and-in breeding.

The Boulonnais, which are removed from their native country in their prime, are well fed on grain and have been regularly worked, which prevents the inertness of temper. But the mares and the breeding stallions live and die with the breeder, are reared more delicately, and fed less, and thus keep their lymphatic temper, and transmit it regularly to their offspring. In-and-in breeding, therefore, is not satisfactory. This was also acknowledged by the authorities is 1840–1850. They endeavored to preserve the width of the animals, and to improve and strengthen their power of endurance and their usefulness by an infusion of better blood. But there is more difference between the Anglo-Norman and the Boulonnais, than between this latter and the full blood; and not only is the disparity greater, but influences prevail impeding or retarding the desired result, which are not found in the pure and simple connection of both races. Morever, experience has shown that the Anglo-Norman has produced injurious results, for they did not wish to change the Boulonnais but to give the energetic motor some blood, which must be done directly. In the same manner that the Anglo-Percheron was produced as a breeder of mail and farm horses, the Anglo-Boulonnais should be used for the very heavy tribes. Some of the best judges told me that the crossing of the Boulonnais with full blood was nonsense; that the race deteriorated rapidly and was almost destroyed; bastardizing left it as it was, and improved and bettered it. In the third generation the crosses were seven-eighth blood, and the draught horse had entirely disappeared. In bastardizing, the new family were hardly one-fourth blood in the fifth and sixth generation. Thus the race would have become better, finer and faster if the year of 1850 had not terminated this as well as other progresses.

The Parisian horse market, near the Boulevard de l'Hopital, every Wednesday and Saturday at one o'clock P. M., presents an opportunity for looking at all the races so far mentioned. The heavy strains, especially, are often represented here by very fine specimens; here and there also genuine "fine" Percherons are seen; but the largest number consists of interior horses.

III. THE LIGHT RACES.

France has not only plenty of heavy and very heavy (cart) horses, but also of light breeds; the middle class—the mail and working horse of the present day, the military horse, for troops of the line—is the one of which she is in want; and since she takes no pains to produce this herself, she must procure it from her neighbors. Besides, the farmer uses by far too many horses. They keep a large number of individuals which are entirely lost, which cost very much, for he uses them for their entire lives, instead of during their prime only. Thus France does not seem to produce horses enough, and yet she has a larger number of them than would be necessary; but in other points she is behind her neighbors. England has many common horses, but there they are not so numerous nor so deteriorated: the German horse is not a fine nor very good animal, yet he has a certain size and form, and if its "toilet" is made, it has a pretty good appearance, although it cannot boast "of family." But in France a large majority of the larger and more substantial races are common and defective: the legs are too light for the exertions to which they are subjected; badly fed and kept, they are from early life used for every thing which degrades a race or keeps it in the lowest scale, although all of these races might easily be made useful. I need only refer to what good feeding and keeping has made of the "percherized." On the other hand, the small French races are too lean, too light, too nervous, have protruding bones, without muscle or flesh, and much fire without bottom; notwithstanding they are hardy, and easy to keep, yet no one desires to purchase them, and the farmer must keep them in comparative idleness. These light races were to be made larger, stronger, more substantial, at least where the forage crops would permit, and in the last years of the "restoration" their systematic improvement was actually commenced. They began with the Bigourdan race (in Bigorre, now Hautes-Pyrénées,) and after the results had proved favorable there, they used this improved race, and also the English-Arabian full-blood, by which it was produced, for improving all others.

Were I to stick strictly to my subject, this might suffice on the horses of France, and I would need only describe the races in succession. Although not being a horse breeder, one may feel interested in the improvement of races carried on to such an extent as this throughout the entire southern half of France; therefore I will briefly present a few details.

In 1828 the Bigourdan race was selected as a basis, partly because it has been preserved best, partly because 600 mares were found within a small district in the plain of Tarbes, near the station of Pampadour, so that the crossing could take place in the presence of experts. These mares descended from the Navarino race, found in large numbers in southern France, and these from the Andalusian, the full bloods of a preceding age. The horses of Tarbes were in great demand for light cavalry and saddle horses; they were the French manege horse, *par excellence*, and in the illustrated equestrian books of the past century there are good representations of them. The abandonment of the studs in 1790 proved detrimental to them, and in 1830 they were reduced very much, the head often being too heavy, forehead arched, withers deep, sway backed, croup pointed but sloping, chest narrow, shanks like a calf, long and thin, legs dry and nervous, but much too light, joints bad, fetlock very thin and weak; a good looking, fiery animal under the saddle, but promising more than it could perform.

The crossing with Arabian stallions had produced animals which were much too small, but when crossed with the English, the colts were thin and spindle-shanked; therefore they were crossed alternately with Arabian and English full-blood, crossing the daughter of the Arabian with the English stallion, and the daughter of the English with the Arabian stallion. But this process was too slow, and therefore they began to cross with English-Arabian blood; this was done at the stud of Pompadour with the most excellent stallions and mares, whose power of transmission had been proved, and they carefully avoided falling back upon English or Arabian blood exclusively.

They began generally with the English mare and the Arabian horse, rarely the reverse way, and proceeded as follows:

	Mother.	Father.	Production.
1.	English full-blood.	Arabian full-blood.	0.50 English + 0.50 Arabian.
2.	Eng.-Arab. half-blood.	English "	0.75 " + 0.25 "
3.	¾ Eng. and ¼ Arab.	¾ Eng. and ¼ Arab.	Equal.
4.	" "	Arabian full-blood.	"

By selecting the breeding animals with great care, the race seemed to be perfect and constant in the fourth generation, since the English and Arabian full-bloods are of the same origin, though they seem to be greatly different. Thus they obtained excellent stallions—larger, with longer and more developed lines, broader limbs, of earlier maturity, as fiery and strong as the Arabian, shorter, more hardy, broader, and easier to keep than the English. After crossing these animals for a few years with native mares,* they obtained brilliant results by proper and careful keeping: the animals were larger and the head longer than the Arabian, but expressive and characteristic, the neck longer and better set, the withers higher, the back better built, the shoulder freer and more sloping, the chest deeper and wider, the knee broader and better marked, a finer angle in the hock, short and stronger shanks, with powerful and more distant tendons, the gait as good as formerly, but much wider, more vigorous and rapid: with one word, a strong, powerful, yet light and elegant race, an energetic, graceful saddle horse, and at the same time a very desirable, light roadster, frequently sold at from 1,000 to 1,200 francs.

With this improved Bigourdan race they then crossed all the deteriorated races of the south, of late maturity, to make them larger and stronger. In the year 1852 this noble work of improvement was rapidly progressing, when the Jockey Club got the ascendancy, and declared that the English full-blood combined every thing they wanted. Accordingly they sold most of the English-Arabian full-blood stallions. Since these were removed, the mares were sometimes brought to inferior Arabian horses, and sometimes to thin, high legged, English horses, often afflicted with all kinds of defects in the bones. The result was that that excellent race rapidly deteriorated, and became much too thin and light. This was evident at the exhibition in 1860, and although it caused a complete reorganization of the studs, yet it is feared that the noble races of the south will be less benefitted thereby than the horses of Normandy. Contrary to the opinion of a majority of the commission in favor of the enlargement of the stud at Pampadour, it has been entirely abandoned, and thus the farmer is, at best, confined to alternate crossing with English and Arabian horses, the proper management of which is not understood by him. For the last two years the State pays more attention to the English-Arabian full and half-bloods, but such excellent horses as she formerly produced are rarely to be had.

Now, after becoming acquainted with the horse of Tarbes (Haute Pyrennées) its kindred tribes may be briefly mentioned. To these belong all horses of the *Basses Pyrennées.* The abolition of the studs in 1790 affected them greatly, so that as a general thing mules were bred; and when they began again to improve, the race of horses had sadly degenerated. Now they crossed them with stallions of the improved Bigourdan race, and obtained small horses, not as elegant as those, but strong, very energetic and fine hunters. Since the population is not so dense in this department as in the Hautes Pyrenées, the offspring are more diffused, except in the valleys, where they are better fed, they form a scale descending through the arrondissements of Pau, Oléron, Mauléon, Bayonne, Basques, and lastly Orthey. The basques are small and trim, very easy of keeping, and enduring horses, lacking nothing but size. Horse breeding is very extensive and profitable in this department, for at the St. Martin's market of Lectoure (department du Gers) she provides the whole south with horses; and the state also draws, I believe, most military horses from the Basses Pyrenées.

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* It was much facilitated since the Navarino mare and the Arabian horse are in-bred.

The Navarinos are found in the department de l'Arriége also. The communities here have large mountain pastures, on which the mares and foals remain through the whole summer, and where there are no horse stations in the neighborhood, the stallions are also sent with the herd. The horses are small, nervous, badly built and unruly; but by good keeping they become more powerful, and therefore are highly valued as mail horses in the departments of Arriége, Aude, Haute-Garonne and Tarn They are readily recognized by the head, being very thick till below the eyes, and then becoming very narrow.

Of all the horses belonging to the Navarino race those of *Auvegran* had degenerated the most, and it was with them that the Anglo-Arabian crosses appeared in the most favorable light, for the Arabian blood kept them short, near the ground, restrained them from going too rapidly beyond the capacity of the soil to sustain them; but the English blood pushed them on more rapidly and produced better results. Horses remain stunted mostly on account of poor keeping; where this is not the case, they obtain a fair size. In color they are mostly light—sorrel with white extremities—are not very well built, but easily kept, energetic, more nervous than muscular, owing to their being kept in the stable too long.

The *Limonsines* are better known in Europe than any of the French races, and formerly had a wide reputation as fine, strong and agile horses. Descending from Arabian stallions imported by the Crusaders, they remained pretty good until greatly injured by Louis XV., importing English, Arabian and Spanish stallions; they were improved again by Arabian blood under Louis XVI., but the Revolution destroyed them entirely. Napoleon brought Egyptian stallions into the Limousine, but they were too small, too light, had too little bottom, and, therefore were of no account. Here the English-Arabian crosses accomplished much till the year 1852: according to the predominating race in a district, they sometimes produced hardy, enduring, coarser military horses (department of

Creuse;) sometimes elegant, light saddle-horses, (Corrize;) in Haute-Viénne, where the mares are larger and stronger, and more English blood could be applied, a vigorous half-blood, (officer's horse.)

The reputation of the *Auvergnians* is not owing to the race—they are degenerated Limonsines which were generally used for breeders—but to the inclement district and wild rearing. The wars of the empire destroyed them almost entirely, yet they again became numerous, and by crossing with English-Arabian stallions, not very fine, but very enduring, hardy and docile saddle-horses were produced.

The *Landairs*, of Arabian descent, bear the stamp of the sand steppes and swamps of the country; they are ugly, but energetic and indefatigable animals, growing up in almost entire wildness; when well fed and crossed with Tarbes stallions, they grow finer and stronger; many of them come from the environs of Dax, into all the towns of the south, and even the metropolis, as saddle-horses and roadsters.

Of all the southern races the improved Bigourdans have the largest number of representatives at Paris; they are seen under the saddle and in light carriages, and are easily recognized by their Arabian cast, their fine, but often too light and thin frame, their noble bearing and elegant gait; yet they are not very numerous even in Paris, and not found at all at the fashionable horse-dealers, since the Anglo-mania has entirely changed the taste and interest for such horses. Whoever desires to become better acquainted with them should go into their native district, at least to Saumur where more than a hundred splendid stallions of this race are kept as manege horses, for which the State pays an average price of 1200 francs apiece.

Before leaving the south suppose we cast a look upon a race of which I could not discover any representative at Paris; this is the horse of the Camargne, the rich pasture lands at the mouths of the Rhone. This race being of Arabian descent and preserved as such through oriental stallions is seldom mentioned beyond the limits of its district; we find it mentioned during the Camisarde wars, at the close of the seventeenth century, when the terrible enemies of Louis XIV. were in possession of an excellent cavalry, the horses of which were exclusively from the Camargne. Like them, they are yet frugal, strong, enduring, small horses, mostly grey, similar to the Landairs in structure. They live in herds of twenty to one hundred head, guarded by men who are as skillful horsemen as the Hungarian Czikos; in summer they have enough to eat, but in winter they nearly starve. They come to the manors to carry away the grain, which is the only work they perform; the remainder of the time they live in the open air. From 1830 to 1840 the State owned a kind of normal farm in the Camargne, where the horses were kept precisely as everywhere else in the country, but they were better fed and crossed with excellent stallions. The results were highly satisfactory, yet the example was nowhere followed, and at last the State was compelled to abolish the establishment. Railroads, mail-coaches, improvements in agriculture, threshing machines, and competition in wool and meat; these only can thoroughly change the horse of the Camargne.

Now we turn to the western coast of France, and having already become acquainted with the horses of the Bocage, we proceed at once to the uttermost corner of the Armorican peninsula, where the *Conquet horses* are produced in the valleys of Conquet, St. Renan and Rondalmizeau. They are mostly sorrel or bay, and are frequently seen in light vehicles at Paris; They are rather common, but not inelegant. Often they are too long and narrow, and have "ram's" heads, and their feet are not very good, yet they are in great demand for their hardiness and usefulness.

The former province of Anjou produces heavy horses, belonging to the Percherons, Poitevines and Bretons; they are not excellent, but renowned for vigorous constitution and great usefulness. The *Angevines* proper are a recent race which was produced, in the vicinity of Angers, by bastardizing with English full-blood and strong Anglo-Norman half-blood; they are of medium size, well built, sprightly, active and fast, between half and three-quarter blood; below half-blood they remained too common, above three-quarter they had too little body. The production of this race is something remarkable on account of the miserable mares, entirely disproportioned to the stallions; the fine results must be owing to the climate, the very healthy, vigorous nature of the mares, and the extinction of the power of transmitting their qualities, which was greater in the stallions.

The excellent Lothringen race greatly decreased under Louis XIV. Stanislaus improved them again through Oriental and Spanish stallions, but the wars proved destructive to them. Meanwhile much has been done for them, but without any great results; the horses of Lothringen have ever been badly kept. These horses are sought after for military purposes on account of their hardiness, frugality and endurance. Of late the breed has been greatly improved; many noble saddle-horses and roadsters, and even coach-horses are produced, and the State has established a manege at Nancy.

The Alsace had, in the last century, a good, light race of saddle horses, of which no trace was left in 1815. The high, intensive cultivation of the soil reduced horse-breeding to a minimum. Many German and Swiss horses were imported, and a heavy breed was produced in some of the swampy valleys.

The French Government always having a predilection for the German provinces, have ever devoted great attention to horse breeding, and the more so, since the Frenchman recognizes in the Alsacian a peculiar talent and adaptation for horse breeding: "The Alsacian being German by character, never maltreats a horse;" thus their more flattering than merited praise is worded in all French works. In some valleys of the Rhine where gravelly soil abounds, and the less fertile hills of Colmar, Schlettstadt, Savern, &c., a light race has been produced descending from country mares and Anglo-Norman stallions. Although the hind quarter is defective and the back too long, yet the animals are in great demand.

Perhaps I have dwelt too long on all these various races which are difficult to distinguish in Paris; but I have done so believing that such a summary review of the productions of France, consisting chiefly of light horses, would be a matter of general interest. For the same reason I will add a few words on the *Berbers*, which are now generally classed among the French races and often seen under the saddle in Paris. The mounted guard regiment of chasseurs in garrison at Paris have the Berbers grey stallions exclusively. The term *Berbers* designates neither the horse of the Sahara, resembling the finest Arabian type, nor the so-called Tunese, longer and more vigorous, but the horse of the Tell, the arable country between the Sahara and the sea. This is stronger and longer than the horse of the desert, with deep, often flat chest; slightly curved back; fine withers; long, lean head; large ears; marked croup, but less fine hide, hair and mane than that of the former; in general, he is less "splendi ," but vigorous, hardy and endowed with excellent qualities Being of more Arabian descent, he owes these defects of elegance, probably, to negligent keeping and carrying burdens, for farm work and mule breeding. The observation has long since been made that the jackass exercises an influence upon the ovary which is apparent in the next productions; thus, the curved back, the mule croup, the large head, and the long ears may be explained, if this hypothesis is correct.

Now we come to a sub-division of the eight races, intermediate between these and the ponies, the so-called "*Bidets*," which are seen in large numbers in gigs and one-horse conveyances in Paris. Six thousand of these animals belong to the "Compagnie Imperiale de voitures de Paris" alone, who, together with the Omnibus Association, furnish the means of conveyance for the personal intercourse within the capital. This Compagnie is organized in a similar manner as the Omnibus Association, but its business is not so extensive as that of the latter, perhaps for the reason that it, in spite of the best arrangements, is impossible to exercise such a complete control over the "cabs," horses and receipts, as is practiced by the Omnibus Company, without difficulty. Yet their depots are in the best of order, the stables are nice and clean, but there is a great difference in the tending and keeping of the horses; there is one groom only for 32 to 40 head. The service of these animals lasts from seven A. M. to one o'clock at night, and during all this time they do not come into the stable; quite young horses only, or such as are to be spared, are changed towards evening. Every other day they have a day of rest and get plenty to eat, but they are so fatigued that they hardly touch their food. Whoever has seen a hackney stable will not soon forget the miserable creatures lying, as if they were dead, before the troughs filled with food.

The night service from one to seven o'clock A. M. for all Paris is managed by one depot.

The horses in the one-horse conveyances present no further interest, the majority of them being inferior specimens of all races; but in the two-horse carriages these small, gentle and enduring "Bidets" are seen. Their quality of endurance nobody will deny, considering that they have to travel a distance of 30 to 50 miles every day. They are purchased by second hand dealers at 350 to 480 francs, of late at an average of 420 francs, since the somewhat stronger and larger animals are wanted. Bought at the age of five years, they are generally kept till they are ten years old.

The large majority of them are the "Bidets Bretons," which probably are the same horses as the omnibus horse mentioned before: the more luxuriant and nourishing food on the sea-coast producing the larger and stronger mail horses, but the pastures on the mountains the smaller and more nervous Bidets. Their native place is in the departments of Cote-du-Nord and Ille and Vilaine, especially in the districts of Guincump and Loudeac; they are greys, bays and duns, have a small head, full of good sense and fire, a short neck, fine back and hips, but the legs might be a little stronger.

The "Double Bidet," in the north of the arrondisements of Brest and Morlai, in the Marbihan, and the entire southern slope of the province, has a large, lean head; is a short, stout, broad animal, with low croup; lean and strong legs; in general, of more marked forms and much bottom —a frugal, hardy, formerly highly valued mountain horse. It is known as the "French Cossac."

The finest variety of Bidets Bretons are found in the centre of Carnouailles—a horse which once had so good a reputation, and in breeding great attention was paid to the purity of the race. Their gait was the "*pas releve*," resembling the trot, for the legs moved diagonally, and the pace, since the feet are thrown forward one after the other, four distinct strokes of the hoofs are heard, but so rapidly after one another that they seem to be connected two by two. This peculiar gate is hereditary in the race, but disappears in crossing with another breed.

For some years the Bidets are crossed with English and Arabian stallions, and at present excellent saddle and hunter horses may be imported of this race from Bretagne. These crosses, judiciously continued, are certainly correct for improving this race, which in itself at present does not supply any real want.

It is to be regretted that the periodical affection of the eyes renders the exportation of the Bretons from their native department necessary at a very early age; they go into the adjoining departments, and many Bidets are now "percherized." The smallest and cheapest of them come into the stables of the fiacres; the better ones are in the one-horse wagons of the industrial classes, chiefly butchers and milk-men, in which service they give evidence of their strength and speed.

On the heath lands in the department of the Loire Inferieure, especially the parishes of Sarenay and Chateaubriant, there exists a similar small race of very vigorous, frugal animals, the endurance of which is really astonishing. The country people hitch them to wagons and use them under the saddle. On market days at Nantes whole families are seen coming on the backs of these horses from their homes, twenty to twenty-five miles distant, and returning the same evening.

As rare as these animals are in the fiacre stables, so rare also are the *Bidets Normands*, which formerly were spread over the whole of Normandy; they are mostly bays, duns and greys, have a broad head, deep chest, a heavy but not short neck, and strong legs. Those coming from the southern portion of the department La Manche are used as fiacre horses; in the northern parts of the same department they are stronger animals through better feeding, and are used for the heavier one-horse wagons. The *Bidets Normandy* disappear gradually, and in a few years they will be fully supplanted by the Anglo-Norman race.

The *ponies*, although not found in Paris in such large numbers as the Bidets, are, nevertheless, plenty there; the rich import them from Galloways, Scotland, and the Shetland Isles. The industrial classes use French races, chiefly in their two-wheeled cart-wagons.

The *cheval brennon*, in the department de l'Indre, with a square, heavy head, heavy jaws, projecting eyes, short, thin neck, short but free shoulder, large belly, the thigh finely closed, the tail nicely set, and the croup broad. It grows up in a half-wild state, is badly kept, and disappears gradually from old age and bad keeping.

On the isles of Noirmoutiers and Ile de Dieu there exist small, excellent ponies, the so-called *race barbatre;* they look wild, but are very gentle, and were famous as saddle-horses for ladies.

In the *Landes* of Bordeaux there are found nervous, frugal, very reliable ponies, suitable for saddle-horses and roadsters, full of fire, indefatigable, with very free shoulders, and of fine figure; they are of the same origin as the *race landain.*

The *Corsican Pony*, a small, thin, fiery, very frugal and enduring horse, sometimes also finds his way into the capital; but he is no more the representative of the old Corsican race; for this was crossed with almost every race, but chiefly with the Sardinian.

IV.—THE HORSE OF STATE OR FANCY.

Although this term is very indefinite, and may appear incorrect, since we have became acquainted with several elegant, light races of saddle-horses and roadsters, yet it is justifiable; for French fancy generally rejects the light races altogether; it esteems none but the horse imported from England and Northern Germany, and tolerates only the Anglo-Norman who is only second rate and not found at all in the stables of the fashionable horse-dealers in Paris. I have a few words yet to say of the Anglo-Norman and the few other races kindred to it in origin, structure, and the use made of them.

Normandy, with her fine climate and excellent forage, has ever been famous for her production of horses; here the animals thrive without special care, acquire fine forms and the best qualities. Moon-blindness, which, in many districts of France so noxious to horse-breeding, is here altogether unknown. The Norman has always enjoyed a high and wide-spread reputation, not only as *bidet*, *pastier* and *limonier*, but also as a fancy horse. Of the latter, two races were distinguished: the *race cotentine*, in the Calvadas and the department la Manche—large, strong horses for coaches and the heavy cavalry. The *race alenconnaise*, in the department de l'Orne, were less strong, but more nervous and fine for the saddle and light carriages. The best were those from the Merlerault; they were mostly bay or black, with white extremities—the best sorrel being without value—a prejudice, which, to some extent, prevails to this day.

These two races were pretty well preserved till they fell victims to the mania under the reign of Louis XV. The countess Dubarry had received Danish roadsters with enormous "ram's" heads as a present from the embassador of a northern court. Then, either because this form of the head was deemed beautiful, or to pay a compliment to the mistress of the king—in short, everybody wanted "ram's" nosed horses, and the breeders in Normandy, to retain their custom, had to procure Danish stallions in large numbers as soon as possible. Gayot describes the result of this cross in the following manner: Superb "ram's" head, with small, dim eyes and long ears, standing very close together, which alone characterizes the common horse; further, a short, thick, fat neck, short, coarse shoulders, even beyond the withers, which are hardly visible, pointed chest, hollow, weak back, high, straight, unmarked hips, high legged, lean fore-arm, thin shin bones, curved backward, bad sinews, weak joints, besides, a thick hide, coarse hair, inert temperament, even in early youth subject to strain, gall and spavin."

The chief *equerrie* of Louis XVI., Prince of Lambesc, introduced twenty-four Cleveland half-blood stallions into the stud of Pin, the names of some of which are still known in Normandy. Being themselves of no fixed, constant race, their influence was not very great. Their get looked pretty fine as roadsters, but were too long, high legged, with thin limbs, short croup and "ram's" heads. The discontinuation of the stud in 1790, was greatly detrimental to horse breeding in Normandy, as well as elsewhere. They were soon in want of suitable horses and mares, and as England still remained closed to them, they used any accessible stallions, without regard to race, mostly from the north—animals which had lost their power and energy in the climate and food of Normandy. In the last years of the Restoration they remembered those English full-blood stallions, and now, in order to secure undoubted hereditary transmission of qualities, they took the full-blood and reinvigorated the nearly extinct race of the Cleveland half-blood descendants, not through a continuous cross with full-blood, but through a rational intermixture of blood in various grades. This was practiced until 1852, when the Norman had become a fine animal—large, slender, with a noble, sprightly head, fine neck, straight back (very short in the Merlerault race) and croup, a finely set tail, strong joints, powerful hind quarters, and great bottom; energetic and fiery in his fine and fast gait. This horse was somewhat modified in the two old centers where he was originally produced, on the one hand with the rich pastures of Lower Normandy, producing chiefly the fine *carossiers* (coach horses) which are best in the arrondisement of Boulogne, on the other hand, in the department de l'Orne, where the winter is more severe, the summer hotter, soil and climate less moist, the forage less luxuriant, produces the lighter, more elegant and vigorous horses. With the breed of either of those old centers those of other districts correspond. In the fertile, rich plains of Caen coach horses are bred; on the plateaux or Alençon which, although they belong to the same geological formation, are not so highly cultivated and farther distant from the sea. Tied to posts they feed the saddle horses here on clover fields, where they acquire less powerful forms than on the esparsette fields of the Calvados. These two horse-rearing districts receive their foals from all the surrounding valleys. The foal of Merlerault, which would have remained light in this department de l'Orne becomes a coach horse, if he comes into the Calvados at an early age; for the high plains around Caën are for the fancy coach horses what the environs of Chartres are for the mail horses. The fine foals of the departments de l'Orne and la Manche are brought thither, but also the productions of full and half blood dropped in the Bretagne, Poitou, Vendeē, Anjou, and afterwards can not be distinguished, since they are, on the part of the mother, often of Norman descent—a blood which was frequently employed in improving the carriage horses of the west.

Yet, "normandizing" is not as generally practiced, or as necessary as "percherizing," for among the large multitude of horses along the sea coast from Nantes to Bordeaux, excellent coach horses are found, such as the horses of St. Gervais, which are natives of the swamps between St

Gervais and Machecaul, resembling the Anglo-Normans in size and structure. Very fine, large wagon horses are found in the bocage of the department Deux-Sèvres. Powerful, but more common animals of the *Rochefort race* are bred in the swamps of Rochefort and Charennes.

The small, indifferent Medoc horse which sadly deteriorated through imported Spanish stallions at the beginning of this century, has, since 1835, been greatly improved through Anglo Norman, and finally, through full blood. He is now a pretty large, well built, powerful coach horse, with long and oblique shoulders, fine withers, and expressive head, of much temper and great frugality, but the back is not well enough supported, the croup too short, the sinews yet too thin, the hoof too broad. A very fine variety is that of *Entre-deux-mers*, between Dordogne and Garonne, on the lower extremity of the neck of land of Ambey, a district which has been proudly named "French Mecklenburg."

I have described the Anglo-Norman of 1852, because he was then finest and best, and Normandy was upon the point of combining all her races into one constant half-blood race of the type described, which, according to the locality, was modified to a hunter, lighter roadster, or coach horse. The race preserved itself for some years, but then rapidly degenerated, and now we see many high-legged animals with bones too thin, muscles not sufficiently developed, weak joints and little bottom; graceful and elegant, but much too light and insufficient; a horse of very much temper, and too much blood. Such is the product of 1852, when, as the French express it, "the jockey-club assumed the sway," and then for eight years ruled supreme over French horse-breeding, according to principles derived from the turf. The breeding of half bloods was neglected. The thinnest, longest stallions afflicted with all possible faults, were used if they were only full bloods. But through this inconsiderate predilection for full blood great injury was done, not only to the Norman horse, but also to all those races for the improvement of which Norman half blood had been hitherto used. One of the chief reasons was the discontinuation of the Stud at Pin, where, besides full blood, an excellent constant half blood race had been produced whose stallions were sent to the State depots; now they were satisfied with purchasing every year a few half bloods, without putting them to any test, nobody knows for what reason. They did not consider that private individuals do not breed a constant half blood, for although the Englishman, when working privately, or for himself, uses great care and skill, and produces excellent individuals, yet his half blood, in the first, or at best, second generation, the product of one or two crosses, is not equal to that produced by the State, a uniform constant race established in the course of time, which certainly possesses the power of transmitting their qualities.

The exhibition of horses, especially in Normandy, showed very plainly the sad consequences of the blunders committed, and it is really surprising that this was not discovered by the proper authority until after the lapse of eight years. Then the government at once went to work with great energy, and now expends large sums in furthering the breeding of half bloods, endeavoring to improve it in every way possible.

In 1852, horse-breeding was entirely abandoned in Normandy, when nothing was wanted there but full blood, which the private individual can breed as well and cheap as the State, i. e., in countries where there are many rich citizens, but at the same time, to favor the English full blood, they reduced also the Arabian and English-Arabian full blood breed Pompadour, and even in the year of 1860, when better principles again prevailed, they discontinued this stud altogether, under pretense of economy, but in fact because the English full blood had not yet been reduced to its proper limits, in their opinion.

There are various wounds which France has inflicted upon herself. They will, for a long time to come, interfere with the accomplishment of the great end for which the administration of the French studs spares neither pains nor costs. Here is an evidence of it. I have said above that the rich Frenchman rejects the horses of his country, and this partially for the reason that he does not know them. He imports from England or Northern Germany such animals as he might procure at home, with the exception of the very large, strong, yet not inelegant coach horses of which England and Mecklenburg, at present at least, produce a better breed. The 12,000 horses every year imported into France are chiefly fancy animals. Therefore, the government endeavors to create a greater demand and a better market for the home products. It pays rather high prices for early castration and trained three or four year old saddle and wagon horses; besides, it has established horse-training schools (private citizens have them also) where horses are boarded and trained until they are perfectly reliable for their future uses. This is not only a great advantage for the small breeder, whose horse is thus being best developed as a fancy horse, but the horse trained there is guaranteed to the purchaser, and this is of great importance in France, where the wealthy neither take the interest in, nor have the knowledge of, horseflesh which the English and Germans have.

But these excellent arrangements will remain useless if the demand does not increase to a considerable extent, and for this reason the Emperor now requests all the Nobles and Dignitaries of State to provide themselves in future chiefly with domestic horses, doing so himself. This plan certainly is a very good and patriotic one, and will produce good results; but the same France which, a century ago, sacrificed an excellent race to the fancy of a Dubarry, is to-day the slave of another fancy. An elegant Frenchman wears English hats only, English clothes; he is ready to pay 10,000 francs for a span of carriage horses from England, simply because t is not *fashionable* to have two Normans, that are just as good for 1,000 francs in the stable. He rides an English hunter which once was owned by Lord X, and he feels happy if he can show himself as the caricature of an Englishman in the Bois de Boulogne. Fancy can be overcome only by fancy. If this should now succeed, then the breeding of French fancy horses is secured for the future, for France is as well able as England to meet all the demands of fancy in the various forms and in the various grades of blood.

To those who cannot go to the large markets of Bayeux, Sèes, Caèn, Falaise, Alençon, &c., it may be as well to state that they may find very fine Norman horses in Paris as well as in the Imperial stables and in the escadron of the Centgardes where the army horses are purchased at 1,800 francs. Besides, some are always to be seen at the Thursday auctions of the French Tattersall, near the Arc-de-l'Etoile, and at similar auctions in the Rue Ponthieu, which take place on Wednesdays.

Now, since we have seen the French horses in their native country, and accompanied them through their life, of which fancy and commercial and industrial intercourse employ so many thousands in Paris, it becomes a true biographer to look at their ending.

Many fall on the field of honor, in the discharge of their duties, victims to accidents of all kinds, but most of them have to come down the entire grade, from the most impressive hight of fancy to the lowest depth of mal-treatment and misery, until they go to meet death in the plain *des Vertus.* Before the gate of Aubervilliers there is a large establishment which formerly was situated on the well-known Montfaucon, now Buttes Chaumont, until it had to recede before the increasing population. Into this so-called slaughter-house a portion of the Parisian *equérisseurs* bring the ruined, fallen or diseased animals of any strain which must be removed from Paris. Besides, the managers of this establishment go to the markets and buy such horses as are unfit for any service, for in Paris they eat no horse-flesh as they do in Germany, which there saves so many horses from extreme misery. The animals are killed with a hammer, skinned and gútted, then the carcass is chopped into pieces and boiled by steam in iron kettles, to extract the fat. After the bones are removed and the whole mass pressed, the remaining flesh (fibrin) is spread upon a steam kiln, where it is dried till it crumbles into small pieces by being turned with shovels, which pulverize gradually. This pulverized meat is sold for manure, for which purpose the entrails, heart, lungs and liver are also used, and thrown into a compost heap, mixed with earth, peat, etc. The manure belongs to the proprietor of the establishment, the equerisseur gets the hide, hair, bones and fat, and pays a certain amount for each head brought there. 6,000 horses are taken to this establishment every year. Another establishment of the same kind and of the same extent exists at St. Dennis. Establishments of the adjoining departments receive most of their victims from Paris also.

PROCEEDINGS OF THE BOARD.

STATE AGRICULTURAL ROOMS, *Jan. 3d*, 1865.

Members all present, Mr. Turney in the Chair.

Ordered, that the President appoint a committee of three to take charge of the agricultural college question—Jones, McLung and Greer.

Ordered, that a meeting be called on the 14th of March to receive proposals for holding the Fair of 1865.

On motion of T. C. Jones,

Resolved, That the Corresponding Secretary be allowed the sum of three hundred dollars per year for clerk hire, commencing January 1st, 1864.

Passed unanimously.

AGRICULTURAL ROOMS, *March 14th*, 1865.

Board met Tuesday afternoon.

On motion of Mr. T. C. Jones, the first premium on draft horses was awarded to Mr. Boughton, of Mansfield, instead of Frederick and Pettit.

On motion of Mr. McLung, the bond of the city of Columbus was accepted for $5,000, as a bonus to hold the Fair of 1865 in Columbus.

On motion of Mr. Greer, the committee of the Ohio Pomological Society be invited to confer with the State Board of Agriculture, so far as the fruit department is concerned.

On motion of D. McMillan, the time of holding the fair was fixed on the 12th, 13th, 14th and 15th of September, 1865.

On motion of R. R. Donnelly, it was agreed to change the general entrance-fee from one dollar to one dollar and fifty cents.

On motion of T. C. Jones, the entrance in sweepstakes is to be one dollar on each animal.

On motion of D. McMillan, the number of tickets to any exhibiter not to exceed twenty.

On motion of J. W. Ross, the price of single tickets was agreed upon at thirty cents.

On motion of D. McMillan, the premiums on fat cattle were changed.

On motion of T. C. Jones, the premiums on milch cows were changed.

On motion of Mr. Buckingham, the premiums on matched horses and mares were changed.

On motion of Mr. Buckingham, the premiums on geldings and mares were changed.

On motion of Mr. Donnelly, the trotters' class was increased.

On motion of Mr. Ross, Merinos were increased 50 per cent.

On motion of T. C. Jones, the following resolutions, expressive of the views of the Board upon the subject of the landscrip donated by Congress for the establishment of agricultural colleges, were passed, and that the Secretary place copies of the same upon the desks of members of the Legislature.

Ordered, that when this meeting adjourns, it be to meet again on Tuesday, the 30th day of May next, to transact such business as may be brought before it, and that the Secretary notify the members in writing, at least one week before the time of meeting.

Resolved, unanimously, by the Ohio State Board of Agriculture, that we respectfully recommend to the Legislature the passage of an act providing for the sale of the scrip granted by the act of Congress, for the endowment of agricultural colleges, at a price not less than eighty cents per acre, and for the appointment of a commission to receive propositions for acquiring an experimental farm with a view to the establishment of an agricultural college in accordance with said act of Congress; said commmission to report to the next session of the Legislature.

Resolved, That we, as the representatives of the agricultural and mechanical interests of the State, do earnestly protest against any division of the fund arising from said grant.

Ordered, that the changes suggested by Messrs. Warder, Campbell and Bateham, in the fifth department, be adopted.

Ordered, on motion of T. C. Jones, that $500 in gold be allowed to John H. Klippart, to make an agricultural trip to Europe.

Ordered, that Henry S. Babbitt be elected Assistant Secretary until the return of Mr. Klippart from Europe.

Ordered, that F. R. Elliott be allowed $25 for his manuscript on horticulture.

Adjourned Wednesday evening, March 15, 1865.

Attest: N. J. TURNEY, *Prest.*

JOHN H. KLIPPART, *Secy.*

STATE AGRICULTURAL ROOMS,
Tuesday, *May* 30, 1865.

The Board met, pursuant to adjournment, at 9 A. M. All the members present at the opening of the meeting, except Messrs. Fullington, McLung and McMillan, who reported soon after. Pres. N. J. Turney in the Chair.

On motion of Mr. Ross, the price of single admission to the grounds during the coming fair was fixed at twenty-five (25) cents, instead of thirty cents as rated at the March meeting.

On motion of Mr. Buckingham—voted that the entrance-fee be placed at one dollar ($1.00), instead of one dollar and fifty cents as voted at the March meeting.

On motion of Mr. Jones—voted that the limitation of the admission tickets be abolished, and that exhibiters be allowed tickets to the full amount of their entry fees.

On motion of Mr. Buckingham, it was voted that twenty dollars ($20) be struck out, and one hundred dollars ($100) be inserted as premium for the best and fastest trotting horse, mare, or gelding, in "Sweepstakes open to all."

On motion of Mr. Greer, it was voted to offer a premium for the best pen of not less than five ewes of any age or breed, of fifty dollars ($50); a premium of twenty-five dollars ($25) for the best long-wool buck, and the same for best pen of not less than five long-wool ewes.

On motion of the President, it was agreed to change the premium on "Files" from five dollars ($5) to silver medal.

On motion of Mr. Ross, the item "best display of mattresses," was transferred from Class No. 37 (list of 1864) to Class 35 (same list); also to modify the caption of Class 37, by adding the words "and miscellaneous articles."

On motion of Mr. Greer, it was agreed to offer premiums of diplomas for best "roofing-tile" and for best "flooring-tile."

On motion of Mr. Ross—voted that a premium for amber wheat be offered the same as that for white wheat and red wheat.

On motion of Mr. Greer, a new class was ageed upon for factory-made cheese, with premiums the same as in Class No. 43, for cheese of domestic manufacture, so to be designated.

Sundry motions were made relative to a money sweepstakes premium for the best and largest display of cheese; and, finally, Mr. Greer's motion, as amended, was adopted, giving a silver medal for "Sweepstakes on Cheese."

Minor changes were made in the list of premiums, and noted upon the list by the Secretary.

The Board then proceeded to the selection of committees from the list reported by the Secretaries of forty-five county societies. In the absence of Messrs. Fullington and McLung, only three names were decided upon for each committee. The names of the awarding committees having been agreed upon for the first three departments, it was voted, at 6 P. M., to adjourn till to-morrow morning (31st inst.) at 8 o'clock.

[This vote was afterwards reconsidered out of the Agricultural Rooms, and the Board convened for an evening session, and completed the list of awarding committees.]

WEDNESDAY, *May* 31, 1865.

Full Board present, except Jas. Buckingham—N. J. Turney, President, in the chair. Various topics of a general nature were discussed and particularly the suggestions of the State Convention in January last, that the State Board offer premiums for the heaviest fleeces of cleaned wool; and,

On motion of Mr. Ross, it was voted that a committee of three members be appointed to devise a plan for carrying out the views of the Convention, and that a premium of twenty dollars ($20) be offered for the best and heaviest fleece of cleansed wool from a buck and the same for ewes fleece, under conditions to be adopted by the special committee. The President appointed T. C. Jones, W. F. Greer and James Fullington, as said committee.

On motion of Mr. McLung, it was voted that the names of the awarding committee be omitted from the premium list for this year.

On motion of Mr. Donnelly, it was voted to separate Class XII, (No. 40) Third Department, into two Classes—one of which should embrace the minerals, fossils and collections, illustrating the vegetable and animal kingdom.

On motion of Mr. Greer, it was voted to amend the premium list as follows:

For the best herd, two hundred dollars ($200); for the best Bull, one hundred dollars ($100); for the best stallion, one hundred dollars ($100).

Voted to accept the proposition of Mr. R. Nevins for printing the premium lists, and of Messrs. Fairbanks, Benedict & Co. for printing the posters.

Board adjourned, *sine die*, at 6 P. M.

WEDNESDAY, *July* 12, 1865.

An Executive meeting was called by order of the President, the members having been notified by mail by the Assistant Secretary.

Present—N. J. Turney, President; David Taylor, Treasurer; and T. C. Jones. James Fullington, in charge of the Horse Department of the next Fair, was notified to be present, but did not appear. Mr. McMillen also being absent, and the propositions for lumber for new structures not being quite ready, the meeting was adjourned to Friday of next week, the 21st inst.

HENRY S. BABBITT, *Asst. Secretary.*

FRIDAY, *July* 21, 1865.

Executive committee met pursuant to adjournment—all present, and James Fullington also by invitation. Various subjects and propositions were discussed but no definite action taken upon anything introduced, except to agree with Mr. Isaac L. Baker, of Dayton, to give him the exclusive privilege to put up as many as three stands for the sale of ice cream, candy, and the right to make and sell popcorn for the sum of fifty dollars. George M. Parsons, Esq., submitted an estimate of the cost of erecting a new Fine Art Hall, 100 feet by 40 feet, viz: $2,744.40, The Secretary was instructed to notify Mr. Stewart that the stock must be kept out of the Fair grounds hereafter; and to ascertain of Mr. Bartlit whether the lots on High street, nearly opposite the grounds, could be obtained for trial of sod plows during the Fair; also to correspond with railroads in Ohio with reference to reduced rates during the Fair.

WEDNESDAY, *August* 2, 1865.

The Executive committee met in pursuance of notice issued by order of the President, at 9 o'clock A. M.

Present—N. J. Turney, David Taylor and Daniel McMillen; absent, T. C. Jones. Messrs. James Fullington and W. T. Greer were present by invitation.

The subject of the new Fine Art Hall was opened and discussed, when Mr. Turney, on behalf of himself and Mr. David Taylor, to whom the matter was referred, reported that an arrangement had been made with Mr H. Carlisle, of Columbus, for all the necessary lumber for the ensuing Fair at twenty dollars ($20) per one thousand feet (1,000), to be delivered in such quantities as may be desired upon the Fair grounds, free of extra charge, and to be paid for in September next. The quality of lumber to be the same as that furnished last year.

The plan for Hall, submitted by Geo. M. Parsons, was adopted so far as relates to the general design but with less expensive finish, except that it should be shingled. It was estimated by the committee that it could be completed at a cost not to exceed one thousand dollars ($1,000) above the proceeds of a sale of the materials used after the Fair.

The oversight of the construction was referred to Mr. Greer; and Mr. Tyler, of Circleville, was employed to do the carpentry of the hall and other structures agreed upon, viz: amphitheatres and poultry house.

The Secretary was instructed to notify Silas F. Dewitt, of Columbus, that the Executive committee would enter into the same agreement for the Police arrangements of the next Fair that were made in 1864, stipulating that Mr. Dill Brooke, of Newark, be associated with him in the matter as in 1864, and consenting that Mr. Dewitt might employ one less detective and receive the same amount for the detectives employed, increasing in the talent of the employees what was lessened in number.

It was agreed that stands for refreshments should be let to individuals at seventy-five dollars ($75) per stand of thirty-six feet in length or less, the choice of position to be sold to the highest bidder on the first day of September next. It was decided that the price per meal should not be fixed at a higher rate than fifty cents, but that fruits and vegetables of all kinds might be kept for sale and beverages that do not intoxicate, ice cream, candy and popcorn not to be included in these permits. The parties contracting for the privilege to pay the sum agreed upon at the time of making the agreement.

It was also agreed that a fee of fifty dollars ($50) should be charged for soda fountains, and for stands for the sale of photographs or engravings the sum of twenty-five dollars ($25).

HENRY S. BABBITT, *Asst. Secretary.*

SATURDAY, *Aug.* 12, 1865.

A meeting of the Executive Committee was called by the President for yesterday morning (Friday, Aug. 11).

Present, Messrs. Turney, McMillan and Taylor.

Two letters from John H. Klippart, Secretary of the Board, having reference to a draft for £100 or £125, which he proposed to make upon the Board, were submitted to the committee by Mr. Turney, to whom they had been sent by the Assistant Secretary.

Without any specific vote upon the subject, the Assistant Secretary was informed by the President, Mr. Turney, that the Treasurer would honor Mr. Klippart's draft for the sum specified above, the amount to be charged him in account current.

Messrs. Greer and Fullington met the committee, and reported the progress in their respective departments, viz., Fine Art Hall and the Horse Ring.

Attest: HENRY S. BABBITT, *Asst. Sec'y.*

P. S.—Ordered, that no checks be drawn by the Secretary for the payment of accounts, until the same have been approved by the Treasurer or President.

HENRY S. BABBITT, *Asst. Sec'y.*

TUESDAY, *August* 24, 1865.

The Executive Committee met at call of President, and Mr. Greer, of the Wool Committee, was also present. The afternoon was spent at the Fair Grounds; and the use of the grounds was directed to be tendered, through Peter Ambos, Esq., to the Saengerbund Society, for their festival of September 1st. In the evening, the fleeces received for competition were examined and prepared for cleaning. There were fifteen fleeces present; others, on the way, had not arrived on Friday at 10 A. M. The choice of position for refreshment stands was sold at auction. Ten stands were sold, netting $235.50 in premiums, and it was agreed that this amount should be divided equally among those that drew lots, viz., the remaining ten, giving to each $23.55.

FRIDAY EVENIVG, *Sept.* 15, 1865.

Board met. Present—President N. J. Turney, T. C. Jones, D. McMillan, James Fullington, J. W. Ross, R. R. Donnelly, W. B. McLung, W. F. Greer, James Buckingham and David Taylor.

On motion of T. C. Jones, it was ordered, that the premium awarded N. Van Loon, in class of geldings in light harness, be set aside, because his horse had received a first premium in same class at Cleveland.

On motion of W. B. McLung, the first premium awarded breeding mare in roadster class, be set aside, because she had not produced a living foal in two years.

On motion of W. B. McLung, it was

Resolved, That the Executive Committee be authorized to sell the lumber and fixtures upon the Fair Grounds in such manner and upon such terms as they may think advisable.

On motion of T. C. Jones, the Board adjourned until 8 o'clock to-morrow morning.

SATURDAY MORNING, *Sept.* 16, 1865.

Board met. Present—N. J. Turney, President; T. C. Jones, Jas. Fullington, David Taylor, R. R. Donnelly and W. F. Greer.

On motion of T. C. Jones, the Executive Committee were instructed to settle the accounts of the Board with John H. Klippart up to October 1st; and they are hereby authorized to purchase of him such books as they may think are desirable for the library.

On motion of R. R. Donnelly, the Secretary is hereby directed to express, by a suitable testimonial, to Messrs. Tallmadge, Buttles, J. O. B. Renick and Mrs. Geo. Parsons, the great obligations the Ohio State Board of Agriculture feel under to those individuals for their valuable services in securing and arranging contributions for the recent Ohio State Fair, in the various departments of Fine Arts, Fruits and Flowers.

On motion—

WHEREAS, During the recent absence in Europe of John H. Klippart, Secretary of the Ohio State Board of Agriculture, the duties of his office have been discharged by Henry S. Babbitt, of Columbus; therefore, be it

Resolved, That the Corresponding Secretary be instructed to transmit to him the thanks of this Board for the promptness and efficiency with which he has at all times performed the many duties imposed upon him, and to express the deep obligations felt by each individual member of the Board for the many acts of courtesy received by them at his hands.

Resolved, That the Executive Committee be instructed to present Henry S. Babbitt with some testimonial, suitably engraved, expressive of the above.

Passed unanimously.

Resolved, That the members and ex-members of the Board be authorized to draw from the library books upon the same terms and under the same regulations as members of the Legislature, etc., are allowed to use the books in the State Library; and that the Secretary be authorized to cause the books to be numbered, and make the other necessary arrangements for carrying this resolution into effect.

Unanimously adopted.

December 14, 1865.

At an Executive Meeting, it was ordered, that the Secretary draw an order upon the Treasurer for the sum of four hundred and twenty seven dollars and twenty-five cents, for books purchased as per invoice of this date on file.

STATE AGRICULTURAL ROOMS, *Jan.* 14, 1866.

W. B. McLung, President, and J. W. Ross, Secretary *pro tem.*

On motion of Daniel McMillan, the following was adopted:

Moved that a committee of three be appointed to examine the books of the Secretary and Treasurer, as well as the reports of the several committees on the same, and that this committee shall have full power to make such arrangements for the future management of the above officers and carry the same into effect, as they may deem necessary, and report their action at the spring meeting of the Board. Whereupon, Messrs. Turney, Donnelly and McMillan were appointed said committee.

There being a mistake by committee in the award of premiums in class of roadster stallions, in awarding the first premium to J. W. McCann, of Hilliard, Franklin county, O., and the second premium to B. D. Anderson, of Xenia—the first should be paid to W. Wylie, of Big Island, Marion county, O.—it was ordered that the first premium be awarded Wylie, and that the Secretary write to McCann to refund the money.

TRANSACTIONS OF THE CONVENTION.

Wednesday, *Jan* 3, 1866.

At ten o'clock Mr. Nelson J. Turney, President of the Ohio State Board of Agriculture, called the Convention to order in the Senate Chamber. The Secretary proceeded to call the roll of County Societies, when the following gentlemen reported themselves as duly authorized delegates:

COUNTY.	NAME.	COUNTY SEAT.
Allen	J. M Haller	Lima.
Ashland	D. A. Fenn	Sullivan.
Ashtabula	D. H. Prentiss	Ashtabula.
Athens	H. B. Brawley	Amesville.
Belmont	J. M. Mitchell	St. Clairsville.
Brown	F. Jennings	Georgetown.
Butler	Fergus Anderson	Ross.
Carroll	R. R. Harvey	Carrollton.
Champaign	N. H. Harr	Westville.
Clarke	L. B. Sprague	Springfield
Clermont	John H. Branch	Loveland.
Clinton	J. S. Hoblet	Wilmington.
Columbiana	B. F. Nichols	New Lisbon.
Coshocton	J. Miskimmen	Newcomerstown.
Cuyahoga	S. D. Harris	Cleveland.
Darke	J. E. Matchett	Greenville.
Delaware	T. F Joy	Delaware.
Erie	F. D. Parrish	Sandusky City.
Fairfield	N. Sleich	Lancaster.
Franklin	Jared Foresman	Columbus.
Geauga	D. L. Pope	Welshfield.
Greene	J. R. Nash	Xenia.
"	Wm. Brown*	Jamestown.
Guernsey	Noah Hyatt	Cambridge.
Hamilton	J. K. Greene	Carthage.
Hancock	G. W. Galloway	Findlay.
Hardin	J. C. Stevens	Kenton.
Harrison	James B. Jamison	Cadiz.
Highland	Benj. Conard	Hillsborough.
Huron	Alva Brightman	Peru.
Jackson	J. Tripp	Jackson.
Knox	John G. Delano	Mt. Vernon.

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* President of an Independent Society; but not a *regular* delegate.

COUNTY.	NAME.	COUNTY SEAT.
Lake	H. N. Carter	Painesville.
Lawrence	J. S. Faverty	Ironton.
Licking	David Smith	Newark.
Logan	John M. Glover	West Liberty.
Lorain	D. A. Stocking	Elyria.
Lucas	W. C. Earl	Toledo.
Madison	W. A. Niel	London.
Mahoning	Lewis Templin	Greenford.
Marion	Chas. Smith	Marion.
Medina	W. H. Witter	Medina.
Miami	W. B. McLung	Troy.
Montgomery	M. Eells	Dayton.
Morgan	J. B. Stone	McConnellsville.
Morrow	A. H. Wrenn	Mt. Gilead.
Muskingum	Valentine Best	Zanesville.
Noble	S. K. Young	Sarahsville.
Pickaway	Z. H. Perrill	Lithopolis.
Portage	F. B. Cannon	Aurora.
Preble	Jas. Albert	Eaton.
Putnam	John Maidlaw	Ottawa.
Richland	A. C. Welsh	Mansfield.
Ross	Hugh Bell	Chillicothe.
Sandusky	Theodore Clapp	Fremont.
Seneca	Wm. Lang	Tiffin.
Shelby	J. Duncan	Sidney.
Stark	John P. Rex	Canton.
Summit	J. Parke Alexander	Akron.
Tuscarawas	U. C Deardorff	Canal Dover.
Union	R. D. Reed	Flint.
Warren	J. M. Roosa	Lebanon.
Washington	A. L. Curtis	Marietta.
Wayne	J. G. Troutman	Wooster.
Williams	Jacob Dillman	Williams Centre.
Wood	George Powers	Perrysburg.
Wyandot	T. V. Reber	Upper Sandusky.

Judge Jones of Delaware. Mr. President, I understand that the Secretary has prepared a paper relative to Agricultural Education in Europe, embodying his views and observations during his tour there the past summer. I suggest that the present is perhaps as good a time as any other to have the paper read to the Convention.

Whereupon the Secretary proceeded to read the address.

AGRICULTURAL EDUCATION IN EUROPE.

Agricultural education is of very modern date. We find no mention of agricultural education made anywhere before the close of the last century. So long as the natural fertility of the soil produced sufficient breadstuffs for the nation, just so long were those who tilled the soil held in a state of bondage. But as population increased, civilization introduced many artificial wants, and the fertility of the soil decreased to such a degree as to attract the attention of those in power. The bondmen were set free, in the vain hope that freedom from human bondage would not only restore the primitive fertility of the soil, but would induce greater attention to agricultural affairs. Then it occurred to some sagacious minds that the agriculturist should be educated in his special vocation. Believing that the *practice of agriculture* had confirmed the existence of certain laws of nature, one of the leading minds of Europe conceived the idea of adopting these laws as a basis to establish a school wherein they should be taught, and to obtain a greater degree of development by experiments. Fully persuaded by the practicability of the plan, Baron von Fellenberg was the first to organize and conduct an agricultural school. This school necessarily was on a very limited scale, with a very scanty literature and no text books to aid him. The school was located in SWITZERLAND, and was organized towards the close of the last century. Then in 1811, a private Forestry School was established at THARANDT in Saxony, which, in 1816, was transferred to the State authorities, and in 1830 was converted into an agricultural college. In 1818, the great Agricultural College of Europe was established at HOHENHEIM, in the neighborhood of STUTTGARD, in the kingdom of Wurtemburg. Then in 1835, an Agricultural College was established at ELDENA, in Pommernia, in Prussia.

These three colleges—THARANDT, HOHENHEIM and ELDENA—were all the purely agricultural schools or colleges established in all Germany during the half century which ensued from the establishment of the school in Switzerland by Baron von Fellenberg. Thus, tardily, was agricultural education appreciated, or its importance recognized. But the importance once recognized and fully appreciated, it is somewhat remarkable how rapidly agricultural education has grown into favor with the Germanic tribes. There are at present no less than one hundred and forty-four agricultural stations, institutes, schools and colleges in the Germanic States—and all of them, with the exception of the three already named, were established since Liebig published his first work on Agricultural Chemistry in 1844—or during the past twenty years. These are located as follows:

In the Kingdom of Prussia	51
" Empire of Austria	37
" Kingdom of Bavaria	12
" " Saxony	4
" " Wurtemburg	6
" Grand Duchy of Baden	6
" several Duchies	28
Total	144

As a description of these 144 institutions would far exceed the limits of this paper, I will confine myself to a description of several of the most prominent ones, and shall introduce no more details than are really essential to a proper understanding of the general plan.

HOHENHEIM being not only the oldest institution of this kind now in existence, but the most famous one, I have deemed it proper to place it first on the list. It was established on the 26th of May, 1818, and had at that time an estate of two hundred and fifty acres of cleared lands, and was placed under the direction of BARON NEPOMUK SCHWERZ—a very celebrated agronomist, and at that time in the 60th year of his age. The institution was opened on the 20th of November, 1818, with *eight* students. The buildings were erected on the ruins of an old castle, by Duke CHARLES, in 1770–80, as a princely residence for himself and body-guard; but these structures were almost in ruins themselves when King WILLIAM determined to establish an agricultural college there. A portion of the royal stud and flock of sheep were placed under the direction of the institution in 1822. I have taken some pains to obtain these dates, in order to place upon record the fact, that only during the past fifty years have any steps been taken, whether in a right or wrong direction, to teach the science of agriculture in its various branches, so far as they were known, in the most populous, enlightened and civilized portion of Europe. Europe has a written history of fully two thousand years—a portion of it has a written history of nearly three thousand years, during which the present phase of civilization on the globe has had its inception, development and attained its present status. There were schools for art, for theology, law, medicine, architecture, but none for the most important of all human occupations—agriculture. Whoever travels Europe now and observes how carefully every square foot of soil is cultivated, and how zealously every substance is economized and rendered serviceable, and at the same time will compare the products of to-day with what they were one hundred years ago, must be fully convinced that the hand of industry, when directed by science, or disciplined intelligence, has produced fabulous results. One hundred years ago, Germany had no surplus agricultural products other than wine; to-day, with nearly a quadrupled population, she exports all manner of agricultural products, including cattle and sheep. These are historic facts which cannot be gainsayed, and their solution is to be found only in the intelligence of the German farmer, operating in accordance with the natural laws of husbandry.

The institution of HOHENHEIM consists of three separate schools, namely: that which may be termed the higher institution, the Agricultural School and the Horticultural School, and to these may be added several special courses of study and instruction which nevertheless have an agricultural relation.

The higher institution was changed into an academy in 1847. Students are received in this academy who are not less than 18 years of age—that have made the requisite proficiency in preparatory studies, and who desire to obtain a knowledge of agriculture in all its branches and relations, so that at a future day they may manage their own estates, or undertake the management of large estates for others. Instruction is imparted by lectures and practical demonstrations, and the course embraces two years of time.

The Agricultural School is independent of the academy, and was instituted for the purpose of creating a class of thoroughly practical stewards, or overseers of small estates, who will take the plow in their own hands—at present it is devoted more to teach young men who own small estates how to perform every necessary agricultural operation with their own hands; as their *practical* education is the main object, the greater portion of their time is spent in actual labor on the farm. They, however, receive instruction from professors during two hours each day, in the lecture room. The number for any one term is limited to twenty-five, and they must be residents of WURTEMBURG—no foreigners are, under any circumstances, admitted to this school. The course embraces three years; they must be at least sixteen years of age and must have a preparatory education.

The third school was established in 1844, and is named the Horticultural School. Six students are annually admitted for a years' theoretico-practical course of instruction. The requisites to enter this school are: To be seventeen years of age, to have served a three years apprenticeship in gardening or in the vineyard; or in lieu of that, to have gone through one course in the Agricultural School. The object of this school is to complete both the theoretical and practical education of gardening and horticulture which the students may have attained in the other schools.

In addition to these three schools, there is annually an educational course on fruit growing, meadow culture and management, shepherding and school teaching.

The fruit growers' course has been held annually since 1850. The students are young men of eighteen and upwards years of age, who intend to make fruit growing their occupation. The course is embraced in four or five weeks study in the spring, and a few days in summer, to learn inoculation practically. Of late years, however, so many wish to attend this special course that it has been commenced about the middle of

March and terminated at the end of May—thus giving an entire course to three successive classes. The meadow culture course of lectures were commenced in 1844, and suspended in 1852, but again restored in 1855. It is a five weeks course, in the springtime, and consists of lectures on practical drainage, surveying, etc., for those who wish to become engineers in agricultural operations, such as draining, irrigation, etc. The number in attendance has averaged *eight* since the commencement.

The *shepherd's* course was established in 1855, and has had a regular annual class of ten or twelve. The requisites to enter this class are: To be twenty years of age, and to have served an apprenticeship of, at least, four years in the shepherd occupation. This course commences in February and continues four weeks.

The school teachers' course is somewhat similar to our Normal School system; and the object of it is to introduce elementary agricultural knowledge in the common schools—the number of cadets is limited to twenty-five—and the course is limited to three weeks, and is held during the autumn only.

The instruction in these extraordinary courses is given either by the Professors of the Institutions, or by experts in the respective specialties who are engaged by the Directory to deliver the special lectures.

From 1840 to 1846 a course of lectures was annually delivered on the cultivation and preparation of flax, but was discontinued when an Institution was opened in STUTTGARD "for the promotion of flax industry." Since 1852 the various work-shops, pattern and model depositories, and the various museums are open to master mechanics, who are permitted to remain ten days in the Institution to observe, inquire, make notes, drawings, etc., of the models or other improvements there; seventy-seven master blacksmiths and fifty-eight master wagon makers have given testimonials of the acquirements they made during their ten days sojourn.

In addition to all these there are special courses for government officers, or those who will succeed in hereditary offices.

A special course has also been adopted for instruction in bee and silk-worm culture and management.

MODEL FARM.

The model farm consists of about 1,000 *morgen* (778) acres. The Director disclaims the idea that it is a model farm, in the usually accepted sense of that term, but is intended to demonstrate improvements, such as a rational system of rotation of crops, careful and thorough culture of the soil, proper treatment of manures, underdraining, irrigation, etc. Of these 1,000 *morgen* 835 only are in an actual arable condition, as follows:

The Chaussefield rotation	99	morgen.
The Meiereifield "	232	"
The Heidefield "	278	"
Free agriculture	19	"
Meadows	145	"
Permanent pastures	50	"
Hop field	3	"
Forest wood nursery	9	"
	815	

The live stock employed and kept upon this farm are—

Farm horses	10
Work oxen	28
Cows and heifers	90
Sheep	1,000

The remaining 165 *morgen* are devoted to the experiments, demonstrations, etc., such as a botanical garden, experimental plots, vegetable garden, vineyard and nursery for agricultural and horticultural purposes. The experimental fields are composed of ninety-seven plots of ground, each containing one-fourth of a *morgen*. On these plots all manner of experiments are made; such as experiments in the different depths of plowing, the effect of different manures, the effects of different systems of rotation of crops, the effects of a succession for a series of years of the same kind of crop, as wheat, rape or potatoes, etc., the effects of excessive manuring, thick and thin seeding, drilling and broadcast sowing. Then, too, in these fields rare and valuable seeds are grown for distribution among the farmers. When I visited there, these experimental fields were chiefly occupied with cereals, wheat, rye, barley and oats, although some were occupied with potatoes, rape, lupines, peas, beans, poppies, mangolds, swedes, sugar beets, carrots and sorgho.

The department for Applied Chemistry consists of a Sugar Beet Factory, Brewery, Distillery, Starch Factory, Vinegar Factory, a Malting and Fruit-Drying Establishment, Roof and Drain Tile Manufactory, etc.

The Agricultural Implement and Machine Manufactory was established not only to supply the vicinity with the best implements and machines at the lowest possible rates, but as a school where young men might become practically finished workmen. It employs from thirty to forty workmen, of which two or three are exclusively engaged in manufacturing models of agricultural machines and implements.

In the Silk Worm department everything is taught that is known in this branch of industry, namely: How to rear and manage silk worms—how to reel the cocoons, and prepare the silk for weaving or sewing.

The Flax-preparing department is still continued, but is limited to water retting the flax, breaking and skutching it during the winter, and its only object now is to introduce the *Netherland* system of preparing flax into WURTEMBURG.

As a sort of addenda to this model farm, is an establishment for the dissemination of seeds to the farmers in the kingdom. There are annually distributed more than a thousand varieties. Then, too, there is an annual sale of bulls and bucks for the improvement of cattle and sheep.

I have omitted to mention anything relative to the Forestry department. The forest consists of 6,290 morgen, embracing all the varieties of indigenous trees, shrubs and plants, and a plot of 25 morgens of exotic trees and shrubs.

PLAN OF TEACHING, AND BRANCHES TAUGHT.

The instruction in the Academy is imparted partly by lectures, partly by demonstrations and excursions, and partly by actual practice. The following is the plan and course of lectures:

AGRICULTURE.

A.—Agricultural Products.

1. General Agriculture and Plant Culture.
2. Special Plant Culture.
3. Meadow Culture.
4. Grape, Hop and Tobacco Culture.
5. Fruit Culture.
6 Culture of Vegetables, (kitchen) Breeding of Domestic Animals.
7. Horse Breeding.
8. Cattle Breeding.
9. Sheep Breeding.
10. Breeding Small Animals.
11. Silk Worm Culture.
12. Bee Culture.

B.—Forest Economy.

5. Forestry.
6. Forest Taxation.

C.—State Forestry.

7. Wurtemburg Forest Laws.
8. Practical Forest Business.

III. COLLATERAL BRANCHES.

A.—Mathematical Collaterals.

1. Arithmetic.
2. Algebra.
3. Planeometry.
4. Stereometry.
5. Trigonometry.
6. Practical Geometry.
7. Valuation of Forests.

B.—Natural Science Collaterals.

8. Mechanics.

B.—Professional.

13. Taxation.
14. Book Keeping.

C.—Agricultural Technology.

II. FORESTRY.

Encyclopedia of Forest Science.
Agricultural Encylopedia for Foresters.

A.—Forest Productions.

1. Forest Botany.
2 Growing Woodlands.
3. Protection of Forests.
4. Profits of Technology of Forests.
9. Physics.
10. General Chemistry.
11. Agricultural Chemistry.
12. Analytical Chemistry.
13. Introduction of Geognosy.
14. Geognosy.
15. Special Botany.
16. Vegetable Physiology.
17. General Zoology.
18. Special Zoology.
19. Veterinary Science.

C.—Political Economy Collaterals.

20. National Economy.
21. Principles of Law.

D.—Technological Collaterals.

22. Economical Architecture.
23. Draughting Plans.

The above named *general* subjects may by considered as though each subject named were the title of a good sized volume. The *captions* or *titles* of the lectures themselves occupy about twenty-five large pages of finely printed matter. For instance, the subject of General Agriculture and Plant Culture is divided into ten sections, as follows: 1, Introduction; 2, Climate and Meteorology; 3, The Soil; 4, Agricultural Implements and Machines; 5, Preparation of the Soil; 6, The Increase of Plants; 7, Manures; 8, Protection of the Seed when Sown; 9, Harvesting; 10, Preservation of Agricultural Products.

Each one of these sections is divided into *specific* subjects, and each of these specific subjects into lectures. As an illustration, the second section, on Climate and Meteorology, is divided into the following specific subjects, each one of which may be the theme of a lecture, namely: 1, The Atmosphere—its composition, height or pressure. 2, Moisture, dew, fog, clouds, rain, snow, hail. 3, Winds. 4, Electricity and Lightning. 6, Heat or Warmth—its horizontal, perpendicular and curved distribution. 7, Light, and its influence upon vegetation. 8, The Heavens —stars, moon and comets. 9, Local climate; climate as affected by seas and continents; elevations above the level of the sea—influence of large streams, seas, sandy plains, prairies, forests, mountains, valleys. 10, Inherent warmth of the earth, and terrestrial magnetism. 11, distribution of the vegetable kingdom. 12, Effects of Frost. 13, Duration of vegetation, and amount of heat during that period. 14, Acclamatization of Plants.

Here there are 14 lectures on one *special* subject. Taking this as a specimen, there would be 140 lectures upon the subject of General Agriculture and Plant Culture, before the subject would be considered exhausted, and perhaps before a lecture would be delivered upon Special Plant Culture or Meadow Culture. And so on with the others.

The Institution has a Library of 4,000 standard volumes, and an annual fund of 500 florins ($200) to increase the Library. There are cabinets and museums of everything pertaining to the branches taught—a collection of soils, minerals, plants, woods, wools, fibres, a museum of anatomy and physiology; a vast collection of models of implements, machinery, &c.,—this last collection embraces 1,250 articles; among them are models of 110 plows. In the Museum of Natural History, I saw stuffed specimens of 400 different birds, and 100 mammals, besides many reptiles and fishes. In the Veterinary Department is a very extensive collection of Pathological specimens and preparations.

The aggregate number of students inscribed on the books of the Academy, from its commencement until the termination of the winter course for 1861-2, was 2,944, of these 2,322 entered for purely agricultural studies, and 622 for forestry. Thirteen professors are employed. For daily order of lectures see pages 18, 19, 20-1.

Daily Order of Lectures at the Agricultural Institution at Hohenheim, near Stuttgard, for the Summer of 1865.

<table>
<tr><th>HOURS.</th><th colspan="2">MONDAY.</th><th>TUESDAY.</th><th>WEDNESDAY.</th></tr>
<tr><td>6 to 7</td><td colspan="2"></td><td>Horse Breeding.</td><td>General Zoology.
Forest Jurisprudence.</td></tr>
<tr><td>7 to 8</td><td colspan="2">Agricultural Chemistry.
Valuation of Trees and Property.</td><td>Practical Geometry—Part II.
Grape Culture.</td><td>Practical Geometry—Part II.</td></tr>
<tr><td>8 to 9</td><td colspan="2">Architecture.
Practical Forestry.</td><td>Architecture.
Protection of Forests.</td><td>Agricultural Taxation.
Agricultural Encyclopedia for Forests.</td></tr>
<tr><td>9 to 10</td><td rowspan="2">Introduction to Microscopic Investigations.</td><td>Practical Geometry.</td><td>Agricultural Chemistry.
Trigonometry.</td><td>Agricultural Chemistry.
Trigonometry.</td></tr>
<tr><td>10 to 11</td><td>Forest Taxation.</td><td>Cattle Breeding.</td><td>Forest Culture.</td></tr>
<tr><td>11 to 12</td><td colspan="2">Forest Chemistry.</td><td>Botany.</td><td>Botany.</td></tr>
<tr><td>2 to 3</td><td colspan="2">Bee Culture. Forestry.</td><td>Agricultural Demonstrations.</td><td>Silk Culture.</td></tr>
<tr><td>3 to 4</td><td rowspan="3">Kitchen Gardening.</td><td rowspan="4">Excursions.
and
Reviews.</td><td>Geognosy.</td><td>Geognosy.</td></tr>
<tr><td>4 to 5</td><td rowspan="2">Agricultural Taxation. } Plain Draughting.</td><td rowspan="3">Practical Field Surveying.</td></tr>
<tr><td>5 to 6</td></tr>
<tr><td>6 to 7</td><td></td><td>Horse Breeding.</td></tr>
</table>

In Summer the Library is opened from 1 to 2 o'clock on Tuesdays and Fridays. Exercises in Chemical Laboratory on Monday, Tuesday and Thursday afternoon.

Daily Order of Lectures for the Summer of 1865—Continued.

HOURS.	THURSDAY.	FRIDAY.	SATURDAY.	
6 to 7	Veterinary Science. Agricultural Encyclopedia.	General Zoology. Forest Jurisprudence.	Veterinary Science. Forest Jurisprudence.	
7 to 8	Agricultural Chemistry. Valuation of Trees and Property.	Technology. Valuation of Trees and Property.	Technology.	
8 to 9	Special Plant Culture. Protection of Forests.	Special Plant Culture. Protection of Forests.	Cattle Breeding. Special Zoology for Foresters.	
9 to 10	Practical Geometry—Part I.	Practical Geometry—Part I.	Technology.	
10 to 11	Sheep Breeding.	Forest Culture.	Sheep Breeding.	
11 to 12	Botany and Jurisprudence.	Botany and Jurisprudence.	Jurisprudence.	
2 to 3	Silk Culture.	Agricultural Demonstrations.	Practical Demonstrations in Fruit Culture.	Forest Exercises and Reviews.
3 to 4	Geognosy.	Geognosy.	From 3 to 7 Practical Agricultural Exercises and Operations.	
4 to 5	Botanical and Geognostic Excursions.	Kitchen Gardening.		
5 to 6		Agricultural Demonstrations.		
7 to 8				

Winter Course at Hohenheim for 1865–6.

<table>
<tr><th>HOURS</th><th>MONDAY.</th><th colspan="2">TUESDAY.</th><th>WEDNESDAY.</th></tr>
<tr><td>7 to 8</td><td>Meadow Culture.</td><td colspan="2">Veterinary Science—Part I.</td><td>Veterinary Science—Part I.</td></tr>
<tr><td>8 to 9</td><td>Geometry.</td><td colspan="2">Introduction to Geognosy.</td><td>Technology and Forestry.</td></tr>
<tr><td>9 to 10</td><td>Chemistry and State Forestry.</td><td colspan="2">Geometry and Practical Agriculture.</td><td>Geometry and Practical Agriculture.</td></tr>
<tr><td>10 to 11</td><td>Technology.</td><td colspan="2">Chemistry and Veterinary Science—Part II.</td><td>Chemistry.</td></tr>
<tr><td>11 to 12</td><td>General Agriculture and Plant Culture.</td><td colspan="2">Vegetable Physiology, Arithmetic and Algebra.</td><td>Vegetable Physiology and Climatology.</td></tr>
<tr><td>2 to 3</td><td>Mechanics.</td><td rowspan="3">Forestry, Excursions and Exercises.</td><td rowspan="3">Cattle Breeding and Rearing. Book Keeping.</td><td>Fruit Culture, Mechanics and Plans.</td></tr>
<tr><td>3 to 4</td><td rowspan="2">Technology.</td><td>Agricultural Demonstrations, Vegetable Physiology and Draughting.</td></tr>
<tr><td>4 to 5</td><td>Technology.</td></tr>
<tr><td>5 to 6</td><td>General Agriculture, Plant Culture, Arithmetic and Algebra.</td><td colspan="2">General Agriculture, Plant Culture, Arithmetic and Algebra.</td><td>General Agriculture, Plant Culture, Arithmetic and Algebra.</td></tr>
<tr><td>6 to 7</td><td>National Economy.</td><td colspan="2">Forest Encyclopedia.</td><td>National Economy.</td></tr>
</table>

In Winter the Library is open from 1 to 2 o'clock on Monday and Thursday. The exercises in the Laboratory are on Monday, Wednesday, Thursday and Friday, from 2 to 5 o'clock.

Winter Course of 1865–6—Continued.

HOURS.	THURSDAY.	FRIDAY.	SATURDAY.	
7 to 8	Veterinary Science—Part I.	Veterinary Science—Part I.	Veterinary Science—Part I.	
8 to 9	Technology.	Introduction to Geognosy.	Technology and Climatology.	
9 to 10	Geometry and Practical Agriculture.	Geometry and Practical Agriculture.	Veterinary Science—Part II.	
10 to 11	Chemistry and Veterinary Science—Part II.	Chemistry.	Forest Encyclopedia.	
11 to 12	Vegetable Physiology, Arithmetic and Algebra.	Vegetable Physiology.	General Agriculture and Plant Culture.	
2 to 3	Fruit Culture and Mechanics.	Draughting Plans.	Agricultural Demonstrations.	Forestry Excursions.
3 to 4	Agricultural Demonstrations and Vegetable Physiology.	Agricultural Demonstrations and Draughting.	Practical Agricultural Exercises.	
4 to 5	Book Keeping.	National Economy.		
5 to 6	General Agriculture, Plant Culture, Arithmetic and Algebra.	Breeding House Animals.		
6 to 7	National Economy.	Forest Encyclopedia.		

THE FOREST AND AGRICULTURAL ACADEMY AT THARANDT.

This Academy is located near the village of Tharandt near Dresden, and its specific objects are to teach forestry and agriculture by lectures and excursions.

Students of good character and of sufficient proficiency are admitted at seventeen years of age. The course embraces a two or three years' term, at the option of the student, and includes the following studies under the teaching of the gentlemen named as Professors, viz:

Director and Professor, Baron BERG—History and Literature of Forestry, Plans of Forests, State Forestry, including estimates of value, Taxation, &c.

Director and Professor Privy Councellor, Dr. SCHOBER—Encyclopædia of Agriculture, Agriculture (the business part of it.)

Professor and Counsellor PRESSLER—Mathematics, (Mensuration) Surveying, Mechanics, Architecture, Plan and Architectural Drawing.

Professor and King's Councellor, Dr. A. STOCKHARDT—Agricultural Chemistry, Practical Chemistry.

Professor Dr. WILKOMEN—Zoology, Forest Entomology, Agricultural Entomology and Natural History.

Professor Dr. KRUTZSCH—Physics, Meteorology.

Professor ROCH—Care of Forests, Hunting, Forest Repetitorium.

Professor Dr. STENGEL—General Agricultural Botany, Structure and quality of Wool, Agricultural Technology.

Royal Veterinarian, Dr. WEBER—Anatomy and Physiology of Domestic Animals, Pathology, Horse-shoeing.

Garden Inspector, Dr. REUM—Kitchen Garden Vegetable Culture.

Forester TAGER—Mathematical Repititorium.

Official Actuary, BOSE—Law.

FIRST YEAR AT THARANDT, CLASS I.

A.—ELEMENTARY AND COLLATERAL SCIENCES.

Pure and applied Arithmetic and Algebra, four hours per week in Summer.
Planimetry and ordinary Mensuration, four hours in Winter.
Plan and Architectural draughting, three hours in Summer, four in Winter.
Physics, four hours in Summer, one in Winter.
Theoretical and Technological Chemistry, four hours in Summer.
Meteorology and Climatology, two hours in Summer.
Mineralogy, four hours in Winter,
General Botany, four hours in Summer.
Zoology, three hours in Winter.

B.—PRACTICAL SCIENCE.

Encyclopœdia of Agriculture, one hour in Winter
" Forestry, three hours in Summer.
Agricultural Plant Culture, five hours in Summer.
Cattle Breeding, three hours in Winter.
Protection of Forests, one hour in Winter.
Conduct of the Chase, one hour in Winter.

SECOND YEAR, CLASS II.

A.—ELEMENTARY AND COLLATERAL SCIENCES.

Trigonometry and Conic Sections, four hours in Summer.
Stereometry Forest Mathematics, three hours in Winter.
Plan and Architectural drawing, with special reference to Agricultural Buildings, three hours in Summer, and four in Winter.
Vegetable Physiology, three hours in Summer, and one in Winter.
Special Botany for Agriculturists, two hours in Summer.
" " Foresters, two hours in Summer.
Agricultural Chemistry and Soilology, four hours in Winter.
Entomology, one hour in Summer, and two in Winter.
Popular Science, three hours in Summer.
Jurisprudence for Farmers and Foresters, three hours in Winter.
Practical Business, two hours in Summer.
Veterinary Science, two hours in Summer, and two in Winter.

B.—PRACTICAL SCIENCES.

Agricultural Management, including Book-keeping, &c., three hours in Winter.
Culture of Forests, four hours in Summer.
Forest Matters in General and Detail, three hours in Summer, and six in Winter.
Natural History, two hours in Summer, and three in Winter.

Practical exercises and demonstrations for Agriculture and Forestry, usually take place on Saturday afternoon, and the Natural History excursions on the afternoon of some other day in the week, during both the first and second year.

During the second year there is especially taught—

Practical Mensuration, including Surveying for Agriculturists, one afternoon in summer—same for Forestry.
Practical Chemistry—eight hours summer and winter.
Practical Exercises in Taxation for Foresters—an afternoon in summer.
Practical Instruction in Horticulture—at appropriate seasons, in the Gardens and Nursery.
In winter, exercises in the chase, and in summer in gunnery.

From this synoptical view, we obtain an idea of *what* is taught here, but not of how it is taught. I will, therefore, explain, in as brief a manner as possible, how the Agricultural and Chemical portions are taught. See page 28. For the daily order of lectures see pages 24–5–6–7.

Daily Order of Lectures at the Royal Agricultural College at Tharandt, for the Summer of 1865–6.

DAILY HOURS.	MONDAY.		TUESDAY.		WEDNESDAY.	
A. M.	CLASS I.	CLASS II.	CLASS I.	CLASS II.	CLASS I.	CLASS II.
6—7	Exterior of Domestic Animals.	Forest Culture.	Exterior of Domestic Animals.	Forest Culture.		Forest Culture.
7—8	Review of Mathematics.	Forest Botany, Hygiene for Animals.	Mathematics.	Forest Botany. Hygiene for Animals.	Mathematics.	Vegetable Physiology.
8—9	National Economy.	Review of Forestry.	National Economy.	Special Forest Mathematics.	National Economy.	Special Forest Mathematics.
9—10	Cattle-Breeding.	Geognosy.	Cattle-Breeding.	Geognosy.	Principles of Forestry.	Agricultural Bookkeeping and Taxation
10—11	Mineralogy.	Agricultural Botany.	Mineralogy.	Agricultural Botany.	Mineralogy.	Utility of Forests. Agricultural Botany. Geognosy.
11—12	General Botany.	Fruit and Wine Culture.	General Botany.	Fruit and Wine Culture.	General Botany.	Pathology.
2—3 3—4	Mineralogical Excursions.	Practical Exercises in Forest.	Architectural Drawings of Plans of Agricultural Buildings.		Practical Physiology for Foresters for Class II.	
4—5 5—6	Practical Vegetable Agricultural Physiology.	Taxation.	Practical Exercises in Surveying—Class I. and II.	Practical Forestry. Physiology.	Natural History. Excursion.	

Daily Order of Lectures at the Royal Agricultural College at Tharandt, for the Summer of 1865–6.

DAILY HOURS.	THURSDAY.		FRIDAY.		SATURDAY.
A. M.	CLASS I.	CLASS II.	CLASS I.	CLASS II.	CLASS I. AND II.
6—7	Mathematical Review.	Forest Culture.	Entomology.	Pathology.	Forest and Agricultural Excursions and Practical Exercises.
7—8	Mathematics.	Vegetable Physiology.	Mathematics.	Vegetable Physiology.	
8—9	National Economy.	Special Forest Mathematics.	Cattle Breeding.	Forest Mathematics.	
9—10	Principles of Forestry.	Special Agricultural Botany.	Principles of Forestry.	Special Agricultural Botany.	
10—11	Theoretical and Practical Chemistry.	Utility of Forests.	Theoretical and Practical Chemistry.	Utility of Forests.	
11—12		Vegetable Physiology.			
2—3 3—4	Plans of Agricultural Buildings.	Practical Exercises in Chemistry.	Class II —Practical Surveying.	Practical Exercises in Chemistry.	
4—5 5—6	Practical Survey in Forests, Cl. II., and Practical Physiology for Agriculturists.				

Daily Order of Lectures at the Royal Agricultural College at Tharandt—Winter Term for 1865—6.

DAILY HOURS.	MONDAY.		TUESDAY.		WEDNESDAY.	
A. M.	CLASS I.	CLASS II.	CLASS I.	CLASS II.	CLASS I.	CLASS II.
8—9	Protection of Forests	Jurisprudence.	Protection of Forests.	Jurisprudence.	The Chase.	Jurisprudence.
9—10	Physics.	Agric'l. Entomology. Review of Forestry.	Zoology.	Application of Vegetable Physiology.	Zoology.	Practical Vegetable Physiology.
10—11	Physics.	Practical Agricultur. Forest Entomology.	Mensuration.	Practical Agriculture. Forest Entomology.	Mensuration.	Practical Agricult. Forest Entomology.
11—12	General Agricultural Plant Culture.	Kitchen Gardening.	Mathematics.	Practical Agriculture. Review of Forestry.	Kitchen Gardening.	Zoology.
2—3	Anatomy and Physiology of Domestic Animals.		Architectural Plans and Drawings of Agricultural Buildings.		Anatomy and Physiology of Domestic Animals.	Forest Microscopy
3—4		Reviews of Nat. Hist.			Review of Mathematics.	Pathology.
4—5			Architecture for Class II.			

Daily Order of Lectures at the Royal Agricultural College at Tharandt—Winter Term for 1865-6—Continued.

DAILY HOURS.	THURSDAY.		FRIDAY.		SATURDAY.	
A. M.	CLASS I.	CLASS II.	CLASS I.	CLASS II.	CLASS I.	CLASS II.
8—9	Agricultur'l Chemistry	Meteorology.	Agricultur'l Chemistry	Meteorology.	The Chase.	State Forestry. Agricultural Technology.
9—10		Machinery and Mechanics.		Machinery and Mechanics.	History and Literature of Forests.	Study of Wool.
10—11	Mensuration.	State Forestry.	History and Literature of Forestry.	Machinery and Mechanics.	Forest and Agricultural Excursions.	
11—12	Plans of Forestry.	Physics.	Physics.	Plans of Forestry.		
2—3	Plans of Agricultural Buildings.	Pathology. Horse Shoeing.	Review of Mathematics.	Practical Chemistry.		Practical Chemistry.
3—4						
4—5						

METHOD OF TEACHING AGRICULTURAL SCIENCE.

The lectures on Practical Agriculture commence with the Encyclopædia of Agriculture. This, as the term indicates, is general reviews of, in brief, every thing relating to practical agriculture, and of some special branches, from their present status of development; partially for the purpose of directing attention to special studies, and thus to prepare for them, and partially of presenting the various branches as a connected whole, and thus show their relations to each other, and to recall important points to the memory of the student. In this review, the relations of the elementary principles and sciences to the collateral and auxiliary ones, are clearly shown, so as to induce the best practical application of all. No *one* lecture embraces the whole, but each lecture is devoted to some special topic; yet the entire course of lectures on these themes form one complete or entire series of the most important points in Practical Agriculture. Connected with this series, are lectures on the first principal part of Practical Agriculture, which is subdivided into two series—one on Plant Culture, and the other on Cattle Breeding and Rearing. Each one of these latter subdivisions is again divided into lectures, one series of which embracing the general laws and principles, and the other the special ones.

The crowning part of the professional agricultural lectures forms the *second part* of the agricultural series, and is entirely devoted to farm management. In this course, the size of farms, quality of the soil and its adaptation to special crops, contiguity to, or remoteness from markets, necessary amount of capital to be invested, number and kind of live stock to be kept, amount of machinery to be employed, book-keeping, technological agricultural branches, which may profitably be carried on, &c., &c., are taught in this series. At the close of each one of these lectures, students are permitted to present objections, improvements, or request detailed explanations; and finally demonstrations are given in this course by means of excursions by railway, or otherwise, to the best conducted estates in the kingdom. Excursions are also made to the royal sheepfolds, for the purpose of studying the different varieties of sheep, systems of b eeding, crossing, &c., as well as to obtain accurate knowledge of wool in all its stages of growth and preparation for market and manufactory. These excursions generally take place on Saturday of each week, summer and winter.

CHEMISTRY.

Chemistry forms a very important portion of the course of study at Tharandt. The course is limited to *one* year, although students are permitted to remain as much longer in this department as they see proper—but the course comprises Chemistry in general, Technological Chemistry, and Agricultural Chemistry. The course is divided as follows, viz:

I. *Chemistry in general, and Technological Chemistry (Summer term).*—This is limited to that portion of physical or inorganic chemistry as laid down in Stockhardt's Elements of Chemistry. Such portions of it as relate to agriculture, are introduced at the proper places; as, for instance, the lecture on Water includes an analysis of water filtering, or otherwise purifying water, generation of steam, &c. The lectures on Heat embrace methods of determining heating properties of the several kinds of timber or other fuel, the construction of flues and gas apparatus. The lecture on Alkalies includes the analysis of wood ashes, the manufacture of lye, soap, &c. The lecture on Clays includes the disintegration of the rocks from which they are formed, and that on the test of clay soils, by the manufacture of tiles, brick and crockery.

II. *General Agricultural Chemistry (Winter term).*—The course of General Agricultural Chemistry consists in an explanation of the following propositions, viz: I. *What* part does Nature perform in plant life? II. *Where* does she perform it? and III. *How* does she perform it? These explanations naturally suggest the following arrangement of lectures, viz:

a. Organic Chemistry: Composition of plants. Woody fiber, gum, sugar. Vegetable albumen. Spirituous fermentation, vinous fermentation. Fatty and volatile oils. Organic acids and bases, coloring matter, &c. Elements of plants. Changes effected in vegetable matter by burning, decay and decomposition. Composition of animal bodies.

b. Chemistry of the Soil: Changes effected in mineral substances by disintegration. Earths. Arable earths or soils. Differences in these in mechanical or physical as well as chemical composition. Investigation of these differences. Soils and subsoils, &c.

c. Special Agricultural Chemistry: General conditions essential for plant-life. Development of plants and vegetative processes. Principal nutritive elements of plants. Increase of crops by tillage, fallowing, rotation of crops, drainage, irrigation, manuring, &c.

At first glance, no doubt every one will be impressed with the idea that here is entirely too much important chemistry to be studied during the winter term. But it must be recollected, on the one hand, that the summer term is never as long as the winter term at this academy; and, furthermore, the students *must* be proficient in all the preparatory studies, namely, General Chemistry, Physics, Meteorology and Climatology, Mineralogy, Geognosy, and Geology, before they are admitted into the class of Agricultural Chemistry. These elementary, or rather preliminary, studies very considerably abridge the course; whilst, if so much of these collaterals as is absolutely necessary to understand agricultural chemistry were taught in connection with this course, a double if not threefold the length of time would be required for a practical knowledge of it.

III. LABORATORY.—There is an excellent laboratory in the basement of the building; in which the students are required to make practical application of their chemical knowledge, as well as to afford the student *confidence*, and a degree of accomplishment in manipulation, analysis, &c.

There is a complete botanical museum attached to the Institution, where specimens of wood of every kind of tree and shrub may be seen. These specimens consist of a vertical and horizontal section—the bark, leaves, fruit and flower of a tree—together with a specimen of the larvæ, crysalis and imago of the insect which attacks it.

At the end of every term, the students are examined in the following branches: 1. Principles of Forestry. 2. National Forestry. 3. History and Literature of Forestry. 4. Regulations of Forestry. 5. Culture of Forests. 6. Practical exercises in Forestry Taxation. 7. Forest Technology and Utility. 8. Protection of Forests. 9. Forestry Repititorium. 10. Forest business—Excursions, Target-shootings, &c. 11. Practice in Forest Nursery. 12. The Chase—hunting. 13. Encyclopædia of Agriculture. 14. Culture of Agricultural Plants. 15. Cattle Breeding. 16. Agricultural operations in connection with Book-keeping and Assessment of Taxes. 17. Political Economy. 18. Agricultural Machinery and Implements. 19. Wool. 20. Agricultural Technology. 21. Agricultural Excursions and Demonstrations. 22. General Mathematics. 23. Surveying. 24. Practical Surveying. 25. Special Forestry Mathematics. 26. Mechanics. 27. Architecture. 28. Architectural Draughting. 29. Mathematical Repititorium. 30. Theoretical and Technological Chemistry. 31. Agricultural Chemistry and knowledge of Soils. 32. Practical Chemistry. 33. Physic. 34. Mineralogy. 35. Geognosy. 36. Meteorology. 37. General Botany. 38. Forest Botany. 39. Agricultural Botany. 40. Vegetable Physiology. 41. Practical Vegetable Physiology. 42. Zoology. 43. General Entomology. 44. Forestry Entomology. 45. Agricultural Entomology. 46. Natural History Repititorium. 47. Natural History Excursions. 48. Anatomy and Physiology of Domestic Animals. 49. Exterior of Domestic Animals. 50. Hygienic or Sanitary Measures for Domestic Animals. 51. Pathology. 52. Horseshoeing. 53. Wines and Fruit Culture. 54. Kitchen Gardening. 55. Laws.

The number of students ranges from eighty to one hundred, of which fully one half are "foreign," or those who do not reside in the Kingdom of Saxony; and the students are about equally divided, so far as studies are concerned, in Agriculture and Forestry.

THE ACADEMY AT ELDENA.

This Institution, situated in Pommerania, in Prussia, is conducted on the model farm plan, and is a portion of the University at Greifswald, a short distance from the latter place. The Academy has about 1,900 acres of land, divided into 1,355 acres of plow land, 344 acres of meadow, 41 permanent pasture, 13 in gardens of various kinds, as flower gardens, vegetable gardens, forest and agricultural plant nurseries, etc., a fruit nursery of 10 acres, and 18 acres for experiments.

The King's Privy Counselor, Prof. Dr. **BAUMSTARK**, is the Director of this Institution, and teaches political economy, agricultural legislation, state finances, popular national economy and policy of Prussia, the organization and details of the Prussian system of government. Prof. Dr. **SEGNITZ** teaches history of agriculture, agricultural statistics, general agriculture and culture of plants; the use and structure of agricultural implements, farm management, book-keeping, practical exercises in appraising lands, lands, exercises in agricultural calculations and computations. Economic Counsellor and Administrator, Dr. **RHODE**, teaches special culture of plants, management of meadows; cattle, sheep and swine breeding; demonstration and practical exercises in agriculture. The Garden Inspector, **ZARNACK**, teaches kitchen gardening, horticulture, culture of fruit trees, ornamental agriculture. Royal Forester, **WIESE**, teaches the science of forest productions, management of forests, excursions, etc.

Prof. Dr. **TROMMER** teaches knowledge of soils, organic, inorganic and analytic chemistry, practical exercises in chemical laboratory, physics, agricultural technology, practical demonstrations in brewing, cheese-making, manufacture of tile, etc. In these, Prof. **TROMMER** is assisted by Dr. **SCHLOTZ**, who teaches, in addition, mineralogy, geognosy and geology. Prof. Dr. **JESSEN** teaches geographical distribution, anatomy and physiology of plants, systematic botany, specific and analytic botany, microscopical exercises, botanical excursions, diseases of plants, and insects injurious to vegetation. Royal Architect, Dr. **MUELLER**, teaches plans and arrangement of farm buildings, architecture, appraising buildings, location and construction of roads, open drains and ditches. Prof. Dr. **GRUNERT** teaches arithmetic, practical mensuration, plane trigonometry, surveying and leveling, mechanics and machinery. Prof. Dr. **FURSTENBERG** teaches general principles of breeding animals, sanitary measures for domestic animals; horse breeding, rearing, shoeing and riding; anatomy and physiology of domestic animals; internal and external pathology and veterinary pharmacœpia; practical demonstrations and exercises with the horse. Prof. Dr. **HABERLIN** teaches agricultural jurisprudence.

The entire course is estimated to occupy two years; although by a special arrangement, less time may be occupied; or the course may be extended to three or four years. No students are admitted who are not qualified to enter the University proper; or, in other words, the students must be 18 years of age, must have graduated at a gymnasium, or a polytechnic school—that is, the highest class of an industrial school—and those who enter for the agricultural course exclusively, must have had one year's experience on the farm proper.

Daily Order of Lectures at the Royal Agricultural Academy at Eldena.

HOURS.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.	SATURDAY.
6—7 7—8	General Agriculture and Plant Culture.		Internal Diseases of Domestic Animals.		Special Agriculture and Special Plant Culture.	
8—9	General Horse and Cattle Breeding.		History of Agriculture.	Meadow Culture.	Hippology and Horse-Shoeing.	History of Agriculture.
9—10 10—11	Experimental Organic Chemistry.	Introduction to Systematic Botany.	Experiments in Organic Chemistry.	Introduction to Systematic Botany.	Geographical distribution of Plants.	Physics.
11—12	Introduction to Academical Studies at the Commencement of the Session.					
2—3 3—4	Forest Productions. Practical Exercises in the Laboratory.	Manures.	Science of Government.	Forest Productions. Soils.	Laying out and Constructing Roads, Drains and Ditches.	Science of Government. Prac. Exer. in Laborat'y.
4—5 5—6	Surveying and Leveling.	Rights of Agriculture	Architecture. Plans of Buildings. Fruit Culture.	Surveying and Leveling.	*Alternating.* Taxation of Lands. Practical Agricultural Demonstrations.	*Alternating.* Botanical Excursions. Forestry Excursions.

There are, aside from the various very excellent cabinets and museums, laboratory, etc., a large stock of Merino sheep, consisting of 1,200 head of Negrettis, Rambouilletts, etc; one stock of Leicester, one of Cotswold, and one of Southdown sheep. There are about 100 head of breeding-cattle, of the Holland, Scotch, Oldenburger, Angle, Danish, and natives; these are kept, a portion of them pure blooded, and others are crosses, for fully demonstrative and experimental purposes.

An arrangement has been made with Messrs. **Labahne & Bauer**, the proprietors of a large manufacturing establishment of agricultural implements and machines; with Mr. **Kessler**, an extensive foundryman; with **Albonico**, the proprietor of a saddlery hardware manufactory, to permit students at stated periods, to visit all the various workshops, for examination, observation and instruction in the various mechanical operations pursued. There is also a large distillery, a brewery, cheese factory, and tilery on the estate, owned by the academy, in each of which students receive practical instruction in these several industrial pursuits. From the commencement in 1835, until the close of 1859, this institution has sent out 924 graduates, of which 718 were residents of the Kingdom of Prussia, and 206 residents of other governments.

This is, in very brief terms, the plan and system of teaching adopted by the most prominent agricultural institutions in **Europe**—in *Prussia, Saxony* and *Wurtemburg.* Other and smaller institutions do not differ materially from these.

Scientific agricultural education forms a portion of the University course at Berlin, in Prussia. Prof. von **Thaer** (a nephew of the celebrated Agronomist, Albert von Thaer), Director of the Experimental Station at Möglin, delivers a course of agricultural lectures in the University; Prof. **Karl Koch** is Professor of Botany and Horticulture; together with others, who each deliver a course of lectures upon their specialities. The Royal Veterinary College of Prussia has, recently, been attached to the University. Prof. **Spinola**, a veteran in veterinary science and practice, kindly acted as my mentor in going through the institution, and kindly gave me several documents relating to the institution, as well as the following "course of lectures:"

Course of Study at the Royal Veterinary College at Berlin.

I. Semestre. Winter, 18—.	II. Semestre. Summer, 18—.
Anatomy.	Natural History.
Elements of Physics and Chemistry.	Botany.
Horse Shoeing.	Physiology.
½ Semestre in Smithing.	Materia Medica.
Zootomy.	Review of Horse Shoeing.

Course of Study at the Royal Veterinary College at Berlin—Continued.

½ Semestre in Smithing.
Apothecary.
Instructions in Smithing.

III. Semestre. Winter, 18—.

Surgery Part I.
Chemistry.
Special Pathology and Therapeutics Part I.
General Pathology and Therapeutics.
Review of Materia Medica.
½ Semestre of Zootomy.
Apothecary.
Smithing.

IV. Semestre. Winter, 18—.

Surgery Part II.
Rearing Domestic Animals.
Physics.
Special Pathology and Therapeutics.
Review of General Pathology and Therapeutics.
½ Semestre of Smithing.
do Apothecary.

V. Semestre. Winter, 18—.

Anatomy.
Pathological Anatomy.
Cattle, Sheep and Swine Breeding.
Encyclopædia and History of Veterinary Science.
Review of Special Pathology and Therapeutics Part I.
Practical Operations.
Clinics.

VI. Semestre. Summer, 18—.

Care and Management of a Stud.
Exterior of Animals.
Veterinary Jurisprudence.
Review of Special Pathology and Therapeutics Part II.
½ Semestre in Clinics
½ Semestre in Ambulatory Clinics.

VII. Semestre. Winter, 18—.

Encyclopædia and History of Veterinary Science.
½ Semestre in Clinics.
½ Semestre in Ambulatory Clinics.

After the publication of LIEBIG'S Agricultural Chemistry, in 1840, an idea almost simultaneously spread over Europe, that chemistry could and would effect a total revolution in agriculture. The best talent of Europe was engaged in making chemical agricultural experiments; and out of these experiments have grown agricultural experimental stations. These stations are at present very popular in Germany. I had a long conversation with Prof. FUNKE, of Proskau, in Silesia; with Prof. HELLRIEGEL, of Dahme, in Brandenburg; with Prof. LEHMANN, of Pommritz, in Saxony. Each one of these Professors is in charge of one of these stations. I spent an entire day with Prof. Lehmann at Pommritz, and examined very closely the system of education pursued at these stations. The method of instruction consists in a series of lectures, explaining the *theory*, or accumulated facts, systematically arranged, and their practical demonstrations in the laboratory, and actual labor in the experimental fields, cattle and sheep stables. All the agricultural *operations*, such as plowing, drilling, underdraining, care and management of domestic animals, are taught as practically as it is possible to teach them, but the *science* of agriculture is taught in the lecture room. But these stations do not, *per se*, make scholars—do not give a *liberal* education—such as may be obtained at HOHENHEIM, ELDENA, or THARANDT, but give a *special* education in everything immediately connected with practical agriculture—" this, and nothing more."

In FRANCE the agricultural schools and colleges do not differ materially from those in Germany just described.

In England there are no agricultural educational institutions—neither are there any in Scotland; but in Ireland there are 33 Model Agricultural Schools; 43 Ordinary Agricultural Schools; 50 Workhouse Agricultural Schools; 3 School Gardens.

All of these schools have more or less land attached to them for culture and experiments, ranging in extent from *two* to one hundred and sixty acres. Ireland is divided into four provinces, viz: Ulster, Munster, Leinster, and Conaught, and these provinces are sub-divided into an aggregate of 32 counties. Now there is a Model Agricultural School in every county, besides one or more Ordinary and Workhouse Agricultural Schools. Boys or young men who have worked on a farm three consecutive years may enter the County Model Agricultural School; if, at the end of one year, the student has made the requisite progress, he is eligible to enter the Provincial Model Agricultural School, and if he has made the requisite progress in one year at the Provincial, he is eligible to enter the "ALBERT NATIONAL AGRICULTURAL TRAINING INSTITUTION," at Glasnevin, a mile or two from Dublin. At the county or provincial school, the student is not required to labor, but when he enters Glasnevin, he must make up his mind to go to work and put into practice what he has learned. He must take charge and manage a small farm, a medium farm or a large estate, according as his prospects in life and family may warrant. The Superintendent of the Glasnevin institution kindly furnished me with a vast amount of information of the Irish system, together with many statistics. From the statistics I have made the following summary, which may or may not be of interest and value:

Total number of all the students in all the agricultural schools for the year	3,366
Total number of students in the industrial classes	298

LIVE STOCK ON ALL THE MODEL FARMS.

Draft animals	437		
Black Cattle	107		
Sheep	382		
Poultry	1,216		
Total amount of acres in model farms	1,779½		
Amount paid for labor	£2,244	13	0
Value of the free labor of the pupils	1,770	16	2
Cost of seeds, manures, implements, &c	2,199	4	6
Rent, Rates and Taxes	2.561	18	0
Total expense	8,776	11	8
Total profit of the farms	3,036	7	10
Total net profit per acre	2	13	10

Or, counting the value of the £ sterling at $4 84, the net profit, after deducting all expenses per acre, amounted to $13 03 per acre.

The usual branches taught in Germany, except forestry, are taught in Ireland; but I am inclined to the opinion that the system in Germany is much more thorough than in Ireland.

This, then, is a brief statement of the facilities of agricultural education in Europe. Now, it may be well to present some of the views of the most eminent agricultural teachers in Europe in this connection, whether they correspond with our own views and impressions or not. And, first of all, I will present the views of Professor Dr. Renning, the King's privy counselor, Minister of Agriculture for the Kingdon of Saxony, &c. The Professor told me that agricultural education always should form a portion of a University course as a preparatory or elementary portion of education in agriculture, but that the instruction should be completed, for those who intend to devote themselves to agriculture, at the experimental stations. But every student at the University should go through an agricultural course, just as he does through a Greek course. Not one student in ten thousand studies the Greek language for the ultimate purpose of residing in Greece, or earning a livelihood by translating Greek works into living languages; but for mental discipline and preparation for the practical affairs of life. He is not in favor of *model farms;* but told me that the science of agriculture should be taught at some *one* University in Ohio. He accented the *one* particularly strong, and said that Saxony embraced an area of 271 German, or 6,097 English, square miles, equal to the one-seventh of the area of Ohio; that Saxony contained a population of over two millions, or a population about seven times as dense as that of Ohio; that in Saxony the educational institutions were within the reach of all; that a majority of the Saxons were engaged in agriculture and its allied industrial pursuits, and yet a single University could, and, for years past, had, taught the science of agriculture to all the Saxons who wished to study it, and in addition had taught an equal number of *foreign* students; therefore, in *his* opinion, *one* institution would be ample, but we should have four or five agricultural experimental stations in different portions of the State, where nothing but the science, practice and experiments in agriculture were taught. These experimental stations should make monthly reports to the State Board of Agriculture, and the State Board should publish a monthly paper of about eight pages, giving a summary of the progress of these stations for the benefit of farmers, who could not attend at any of the stations, and yet have the advantage of the experiments. These papers to be distributed gratuitously to such farmers as would be willing in turn to write out their experiences and every day practice for the benefit of those who subscribed and paid for the paper. In this manner an interest would be created; agriculture take its proper position among the industrial pursuits of mankind, and would be ably advocated and defended by the corps of practical farmers who would unite and exert a healthy influence upon society in general and the rising generation in particular.

Agriculture is a *trade,* which heretofore was based entirely upon experience, and in very recent times only has entered on the pathway of science, and upon which it will rely, more and more, as the latter becomes more fully developed. In the present status of agriculture, experience alone will conduct to a certain point, but beyond which it cannot pass; the basis or causes of results are unknown to it, and hence, as experience has no explanation or philosophy of causes, it is as apt to adopt erroneous as the true explanations. It can do nothing more than fall back upon the circumstances and relations by which it obtained its results, but cannot apply these to untried ones, and must, therefore, be repeated by every one who confines himself to experience alone. An actual experiment in agriculture is *not* readily made, because it is based upon the most rigid observance of every relation upon which a result is based. It is unreliable if a single element or factor has escaped observation. It, therefore, requires a fully developed judgment, and a keen observation, such as some have received as a natural endowment, and others acquired or improved at school. Every experiment is valuable and applicable to single and concrete cases only, and not generalities; there is, therefore, no *experimental* SCIENCE which will admit of universal or general application in agriculture. Science can be based upon laws only, while experience is based upon observation and facts in isolated or individual cases; no one, therefore, would desire to undertake to make *all* the experiments recorded in agriculture, whose result they wish to enjoy. A conglomerate of isolated experiences, (and such are many of the accepted doctrines or facts in agriculture, which fail to furnish us all the requisite data), can never be accepted as a true basis of agricultural teaching or education —a single glance into some of the agricultural text books will satisfy the most sceptical on this point; as, for instance, the very contradictory statements we find of the nutritive value of the several kinds of cattle food. It requires all the analytic powers of a judge who, through a mass of conflicting evidence, mentally separates the true from the false, the real from the simulated, and thus administers the law in justice; so the non-jurist might possibly render a similar verdict, but it would be by mere accident, and not by the employment of higher faculties of the mind, nor would it be based upon a thorough and correct knowledge of the law.

Until the days of Albert Thaer no one thought of learning agriculture, except by actual practice on the farm and in the field; it was regarded as a trade which either could not be taught, or else was not worthy of teaching, and so, must be acquired by practice. It was at this point of departure whence all the wide-spread strife, concerning the higher agricultural institutions, has arisen. The several and conflicting views may be very briefly summed up; the advocates of the one party insist upon a *practical*, whilst the other party insists upon a scientific education—the former advocate the common agricultural schools, the latter the universities, as the type of their respective views. The former regard experimental science as the main stay of agricultural teaching or education, and at the same time regard the natural sciences and political economy as auxilaries or collaterals; they wish to teach the agriculturist the practical part, and insist that his entire education should be an immediately practical one. The latter, or other party, deny the existence of experimental sciences, and make their basis of agricultural education a widely expanded and fully developed mental accomplishment; they regard agriculture as being based upon the natural sciences and national economy; they wish to teach principles and leave the inevitable, practical knowledge to be acquired by practice.

"The difference between these parties in their system of teaching is simply this: that, in the ordinary agricultural school, no previous scientific attainment is required, but the universities insist upon the previous scientific acquirement, because all the lectures are based upon scientific principles.

"Time alone can terminate this important controversy, and yet it is not difficult to foretell which party will be victor. Science will gain ground just in proportion as it makes progress, and points out unerringly the proper course to be pursued; whilst the advocates of a practical education will lose ground just in proportion as they fail to understand thoroughly and apply the principles discovered by science. The practical education parties, in reality, are placing agriculturists in the position of obstinate men, knowing things by halves, whilst the advocates of the scientific agriculturists acknowledge that agriculturists are uninformed, but are very zealous and anxious to learn, and therefore will learn more rapidly and attain the *real* object sooner than the others. There are so many industrial pursuits connected with agriculture, some of which may be pursued to great advantage on the proper sized estates, or under appropriate surrounding circumstances, that the principles of them should be acquired at the schools, because success in them is more dependent upon a thoroughly aroused and cultivated intellect than upon mere handicraft.

"A thorough elementary school, a common school, a high school, an industrial school, a gymnasium, or a higher polytechnic school, may represent the degree of education required, in the estimation of many, in a particular neighborhood, but the more full and complete any one of these schools are, the wider will be the range of intellectual development, and the greater progress will the agricultural student make in the science applicable to agriculture, and the greater will be the advantages which he will reap from his education; at the same time care must be taken not to engraft a scion on a stalk which it, in course of time cannot sustain, lest both be ruined. Neither should there be a substitution of an overloaded memory of things which every-day life will teach much better than books or lectures, for practical education; in other words the schools should be organized and regarded as their mission imports, namely: Institutions for the full development of the mental faculties, and not the teachers of experiences which practical every-day life alone can give.

"If it is accepted as a fact that the science of medicine can be taught at the schools to such a degree that the student may enter upon a successful course of practice; that graduates from polytechnic institutions, may at once enter upon the practice of dyeing, spinning, weaving, distilling, pottering, &c., *then* it cannot, with propriety, be doubted that agriculture may as well be as thoroughly taught in schools as any of the foregoing. It is a well-established fact here, in Saxony, that graduates from the agricultural institutions very rapidly overtake those who know agriculture by practice only; I say *graduates*, for nothing is more mischievous or brings more contumely on the institutions than the partially educated students who know things by halves, or even less, because the public regard them as having gone through the several courses, and do not stop to think that knowledge and mental culture cannot be imbibed through a straw or swallowed from a spoon.

"Agricultural education is not yet fully appreciated, possibly for the reason that agriculture itself has always been considered a handicraft and perhaps, too, on the other hand, because science is not yet sufficiently developed so that it may be fully known to what extent science may aid agriculture. But as every day brings new proofs of the importance of the application of scientific principles in agriculture, there is no doubt that a discriminating public will cheerfully sustain two classes of schools, the one where scientific principles, or purely scientific agriculture is taught, and the other for scientific experiments or the development of new scientific principles and practice."

This is the advice as well as the matured views of a man who has spent a long life in the dissemination of agricultural knowledge, and has long been in the agricultural bureau of Saxony.

The next views which I have deemed of sufficient importance to present, are those of BARON JUSTUS VON LEIBIG. In the course of a very ong conversation, he said: "You want to teach agricultural *science* in he same manner that medical science is taught, that is, by series of lectures, delivered by competent professors. You must not trouble yourselves about teaching *practical* agriculture. The several lecturers on the several branches of agriculture can make excursions of one or two days every week into different parts of the State, and can see and examine the operations on the best farms in the State. In this way they will learn what the present system and practice is with the *best* farmers. Many improvements in the manual part of farming will thus suggest themselves to the students, which they can put into practice themselves. But you must teach the science of agriculture as *purely*, that is, with as little reference to application, as the science of geometry or trigonometry is taught. We all know how readily the sciences of surveying, navigation and astronomy are acquired after we have become thoroughly well versed in geometry and trigonometry; now surveying, navigation and astronomy are nothing but geometry and trigonometry applied to practical purposes; so if you teach the *science* of agriculture purely, such very practical people as the Americans are celebrated for being, will very soon apply this to practice in a much better manner than if you undertook to teach *practical* agriculture. This system of teaching dispenses with a model farm, which is no more than a *halfway-house* between science and practice, representing both so partially and incompletely as not to be of any *real* advantage to the student, but rather serves to embarrass him.

But you *do* want "*experimental stations.*" Put these in charge of the most competent persons whose services you may be able to obtain. Let the object of these experiments be to obtain the greatest crops at the least expense, without impairing the fertility ot the soil. If the experiments are made with a view of simply demonstrating what science may accomplish, you are not advancing the progress of agriculture, neither are you obtaining any beneficial results for its best interests. One centrally located institution to teach *pure* agricultural science is as much as you need until your population has at least doubled; but, if you can afford it, you should have an experimental station in every county—it just as necessary as a high school in every county town. But do not let these experimental stations fall into the hands of incompetent or indifferent men. You must pay good salaries to your professors, so that they can live without devoting half or a third of their time to money matters, shifting, economizing in a niggardly manner to eke out a bare existence—the mind should be free from money troubles—therefore select men who are prudent in their expenditures, because spendthrifts, with princely salaries, are always in money troubles, and have their minds distracted and diverted from their actual professional studies and duties, and are dear at half the price of a devoted and prudent man.

You will not require a great amount of land, said Leibig—a few hundred acres is all sufficient, for all manner of experiments, and permit me to say you must make *experiments* only. You must not undertake to teach a specific system of MODEL farming for many reasons: firstly, not one student perhaps, in a hundred, can obtain a farm precisely like the model farm; he may not be able to obtain so much grass land, or so much upland, or may be unable to have farm buildings precisely like the model ones. Then what good does your model do when nobody can copy it? And to copy a part of a model impresses the uninformed with the idea that the whole is copied, whilst the *result* obtained from a *part* of the model cannot necessarily be as great or as beneficial materially as if the whole were copied; and yet the moral effect is; that *that part* represents the entirety of the model.

Limit your contemplated institution to experiments, and as for practice you have every day at your service the practice of the whole State of Ohio. Let the students visit the best farms in the State, and see how things are managed, and it will do them more good than if you undertake to carry out the "*model idea*." You should make experiments, not simply to demonstrate what *can* be done, but make experiments to show what can be done *profitably*, and what may be done by any intelligent farmer. Of course you cannot expect to accomplish much for the present generation of farmers, but the seeds you sow will be reaped by the future and coming generations.

Then, too, you should have Experimental Agricultural Stations throughout the State; if you cannot afford to have one in every county, then have one in every nine or ten counties at first, and let them be increased gradually. Now if your ten or twelve colleges which you say you have in Ohio, and who are so very anxious to participate in this agricultural educational work, and obtain a name and reputation for agricultural ability, let them take charge of the Agricultural Experimental Stations. You say that all of these colleges profess to teach chemistry; of course chemistry cannot be taught without a chemist; then just place the experimental station in charge of that chemist. You should not place it in the charge of any one else. Under whose charge other than that of a chemist would you place it? Under that of a practical man?—and for what? The *practical* man will only practice there what he has practiced all his life elsewhere. In your free country the students can roam all over the country and see much more of practical agriculture in one day than the practical man can teach in a month. In a word, your American farmers are the best practical farmers in the world; but they require the aid of science or scientific experiments, to guide their practice and make it yield them three fold what it now does.

The agricultural department to a college without an experimental station is simply nonsense, because you cannot teach anything relating to practical agriculture that half the students do not already know from actual practice on the farm. And surely you do not wish to teach what every *practical* farmer already knows, because if *that* is your object, then it would be better for the students, so far as they are concerned, to go at once to a practical farmer, where they can obtain wages for their services and learn the practice at the same time, and dispense with an agricultural college altogether. The object of an agricultual college is not simply to teach what is already known, but to teach a better system of farming. How will you do this? Certainly *not* by employing a practical farmer to manage a *model farm* for you, for he knows only what is practiced generally; and his superior ability will consist simply in his better *management* over other ordinary farmers. This will be teaching financiering, and not agriculture. The only method by which you possibly can advance and develop your agriculture is by *experiments*—that is the only plan, for there is no branch of industry so completely built up of experiments as agriculture. Therefore no teacher or any one else can go from England or Germany to Ohio and grow sixty bushels of wheat per acre the *first* year; after he has become acquainted with your meteorology and soil, by experiments, he may then do it, but not before. So far as cattle breeding is concerned, *all* of that can be taught at the college proper. A few of each kind of cattle, horses, sheep and swine will be sufficient. You must not calculate that the experimental farm will in any sense be a source of revenue to the finances of the institution, for whilst some experiments may show considerable net profit, others will show a corresponding loss. It is impossible for any one to know, in advance, which one of any two series of experiments will be paying ones (in money)—you should *try* to make them *all* pay.

Permit me to repeat that the manager or director of the establishment should be a man thoroughly versed in Scientific Agriculture; because the experimental farm is for the purpose of making experiments *purely*, and not for the purpose of maintaining or supporting the school. The scientific director can see that the proper experiments are made; and these experiments should always be made in direct consideration of being put into general practice; that is, the tendency of these experiments should tend to producing the *greatest* crops, at the *least* expense, without *exhausting* the fertility of the soil, and, of course, be of such a character that all the farmers may avail themselves of the methods. On the other hand, if the experiments furnish data for the belief that crops cultivated or grown according to these experiments will cost more than the crop is worth, then no person will repeat the experiment on his farm, and you have made no progress so far as practical agriculture is concerned; and notwithstanding you may have solved a problem or ascertained a fact by such a profitless experiment, yet so far as agriculture itself is concerned, it is of no value.

If your director is a *practical* man only and not a scientific man, his experiments will in all probability be a repetition only of what is perhaps being done on every well regulated farm in the State. You can never persuade a purely practical director to make proper scientific experiments.

Liebig spoke to me at great length of the extravagance of Americans in their educational buildings—spending everything for buildings and display, and then starving teachers and professors.

Now what do we want in Ohio? Is there anything in the European systems, or suggestions of Reuning or Liebieg, which we can introduce into Ohio? If the Congressional grant contemplated a *purely* Agricultural School, there would be less difficulty in determining what course to pursue, or what plan to adopt; but we must remember that the mechanical interest of the State claims an equal portion of this grant with the agricultural, whilst the *classics* must not be excluded; the military can be introduced into any school, academy or college without any serious derangement of their present systems. The act of Congress appears to have contemplated the establishment of Universities, whilst it has by its terms limited them to Colleges—nay, it often appeared to me that it contemplated a university with a polytechnic institution attached. But whilst I have not been unmindful of the claims of the mechanics, classics and military, I have directed my entire attention to the agricultural portion, believing that the representatives of the *other* interests would not neglect theirs.

For my own part, and I speak for myself only, my conviction is, that less time should be devoted to teaching the *art* of agriculture than to teaching the *science* of it. We are undoubtedly the most practical people on the face of the globe, and understand the *art* of agriculture as a whole better than any other people or nation; there may be specialties in which others excel, as, for instance, the English are the best plowmen, but indifferent reapers or mowers; the Germans excel in mowing, but are poor plowmen, &c; we are perhaps not so perfect in some of these specialties, but, as a whole, understand and practice it better than most of the Europeans. Therefore, what we want most especially is the *science*. The physician obtains his science by study, and then applies that science in his practice; but the farmer of to-day is like the practicing apothecary, who knows one medicine from another by practice only—does not necessarily understand the reason, or the *why* and *wherefore*, this or that medicine is administered. And so long as we had these practising apothecaries, they gave calomel and bled in fevers, and killed more than they cured, until science, which is nothing else than common sense, pointed out a more rational system of treatment. Our system of farming is precisely as if a hospital nurse were to undertake to practice medicine. The nurse knows that certain medicines and treatment were prescribed by the physician for certain diseases. The nurse now assumes the administration of medicines, without knowing their general or specific effects upon the system, their chemical composition, or their combined action.

Now the soil may be compared to the patient, and the farmer to the physician. If he does not understand the temperament, constitution and condition of the patient, how can he hope to treat it successfully?

How shall the young farmer be educated? To serve an empirical apprenticeship to the art of farming, as the nurse does in the hospital, will no more make him a thorough farmer than it makes the nurse a scientific physician. There is a preliminary and elementary course of education indispensably necessary, and it is this preliminary course which, in my opinion, is the mission of this agricultural college to impart to the young farmers. This preliminary course will make the student thoroughly acquainted with all manner of soils; their mechanical and chemical composition, as well as the nature and composition of manures; the nature and composition of all the agricultural plants; the principles and practice of breeding, and the care of domestic animals, to such an extent that he can apply the scientific principles in practice just as well as the physician applies his science in the remedy of diseases. I am, therefore, disposed to adopt the plan of Baron Liebig; not because it is Liebig's plan *per se*, but because it appears to me to be more in accordance with common sense; namely, to teach the *science* of agriculture *purely*, and then it can be applied in practice as occasion or circumstances may require.

The *model farm* is a hospital, and the students on a model farm are simply nurses in a hospital, who *mechanically* learn the administration of medicines and the care of the patient, without knowing *why* the specific medicine or treatment is prescribed. Now if these nurses had a good elementary and purely scientific preliminary medical education, hospital practice would soon make them very excellent physicians; and for the same reason, if the agricultural students have a good elementary and purely scientific agricultural education, the *art* or *practice* of agriculture can much more readily be acquired. But in connection with the scientific system of agricultural education, there must be connected an agricultural experimental station; this experimental farm—and not a *model farm*—to be under the *direction* of the Professor of Practical Agriculture, but all the experiments should be made by the students; that is each student should plow, spade, underdrain, harrow, drill, roll, manure, seed and harvest his special experimental plat. This will afford him physical exercise, and at the same time enable him to put his science into practice. Then, too, the students should be compelled to take care of all the live stock on the farm, under the direction of the Professor of Veterinary Science.

The professional man takes a three or four years collegiate course, and graduates before entering upon the studies of his special profession, and then devotes from two to three years of hard study to his actual profession, making in all from five to seven years of absolute study. This is done every day, and without any other thought than that it is the prescribed course and must be obeyed. If there are errors in the usual collegiate system of education, it is not incumbent upon the agricultural college to transfer them to its curriculum; but if the collegiate course, as usually practiced, is as near perfection as we may hope to attain, then there is no good reason why the young agriculturist should not devote the same time to acquiring his profession. Yet it is not probable that "Young America" will spend five years in learning the profession of agriculture. I would, therefore, respectfully suggest that the course of study be so arranged as to embrace a two, three and four years course, for those who had graduated at an ordinary high school; or a three, four and five years course for those from the ordinary grammar schools. The two years course to be known as an *academic* course, the three years course to be known as the *collegiate* course, and the four years course to be known as the *professional* course. The graduates of the two years or academic course to receive the diploma of "TEACHER;" the graduate of the three years or collegiate to receive the diploma of "BACHELOR;" the graduate of the four years or professional course to receive the diploma of "PROFESSOR," or "*Master*." The fourth, or professional year, to be devoted entirely to such profession as the student may elect, and as is taught in the institution. If, for instance, any student enters the institution with the intention of becoming a veterinary surgeon, then the first two years he should devote entirely to the academic course, and the last two years be exclusively devoted to the professional course; and when he has completed the professional course and has passed a meritorious examination, should be entitled to the collegiate diploma as Doctor of Veterinary Medicine, and be permitted to commence practice at once; and so of the other departments. No subsequent professional study should be required. This institution's diplomas should have the same social value as those of any medical, law or theological colleges have for *their* specialties.

It is the opinion of some otherwise very intelligent gentlemen, that this institution should fit young men to fill any station in life to which they may be called. I cannot agree that this is practicable. *Time*, with us in America, is everything; and we cannot do as is done in Europe—send a boy to school from nine to eighteen years of age, and then to the university until he is *thirty*, if he is *not* "bright." Four or *five* years at most, is all the time that may reasonably be relied upon as being spent at an educational institution of a grade above the grammar school. It is impossible, in this short space of time, to prepare young men to engage in any and every one of the five hundred industrial pursuits—the sciences have made such rapid progress that they alone, aside from any literary acquirements, would absorb all of this period. In my opinion there would be no evil consequences, but much good might result, if the science of government were taught in a practical manner. Let the students hold an election, elect some one of their number as President, and then let the President appoint his Cabinet, elect a Congress and hold a session once a week, and in this manner become familiar with the duties of *official* life. In this manner they certainly can learn as much of government proper and in detail, as they will of military life under the military teacher or professor. Or if there are a sufficient number of students, let the junior classes represent a State Government and Legislature, whilst the seniors represent the U. S. Government and Congress. Courts of various degrees should be organized, so that students might learn in detail all the relations and operations of the entire system of government.

What specific branches shall be taught in this Agricultural Institution? From what I saw in Europe, I have come to the conclusion that those who are laboring under the impression that this institution should teach the *art* of agriculture, are laboring under a mistake. The *art* of agriculture is simply plowing, seeding, harrowing, &c.; that is, it is merely the manual part of it. Now, where a people are limited to the manual part of any profession or calling, they may in course of time attain perfection in workmanship; but they make no *progress*—they are like the horse on the treadmill, making the same continual round without producing any change. It is only when some acute mind applies itself to the study of *principles* that any invention or amelioration is produced or attained. The Germans invented the art of printing, invented gunpowder, the mariner's compass, and clock; but none of these were invented by the German *mechanics*—they were invented by men who studied the principles of physics, and applied them to the practical affairs of life. And the mechanic, whether German or American, who confines himself to the perfection of the manual portion of the art he has chosen, without studying the principles involved in that art, never makes any improvement or invention. Hence the German artists are, perhaps, the most perfect in the manual portion of their workmanship of any in the world, but they are no inventors, no improvers. And this is the great error of German education, namely, that the artizans are not taught the *principles* of their art, but the manual portion only, whilst the scientific students are taught the principles only, and not the manual portion.

Skilled manipulation in any art, whether Agriculture or in Sculpture, is simply the well-disciplined private soldier, in the ranks his perfection as a soldier can be made practically manifest only when under the command of a general or superior to direct his movements—if his superior is incompetent and directs erroneously, all the discipline of the soldier, however perfect, will not save him from disaster; but on the contrary, an able general or competent officer will save his command from ruin, even if the soldier is defective in discipline. The general or commanding officer is the embodiment of military *principles*, and the private soldier is the perfection of *manual acquirement*, and just in proportion as they are removed from each other, do they depreciate in value and efficiency. The education of the farmer then should be such as to fit him to be both *general* and *private;* that is, he should thoroughly understand all the principles involved in the several branches of Agriculture, and should, at the same time, know enough of the art so as to perform the manual portion properly. If, therefore, the Agricultural College will confine itself to teaching the principles of Agriculture, in connection with practical experiments in the field, it appears to me that much more will be accomplished than if a manual laboring model farm plan is adopted. And here the question may with propriety be asked, what are the principles of Agriculture? WEBSTER defines the term "principle," as follows: "A fundamental truth or tenet; a comprehensive law or doctrine from which others are derived, or on which others are founded; an elementary proposition."

All the fundamental truth in agriculture, then, form the principles of agriculture. What are these fundamental truths? Simply these, that the soil has a certain relation to plants, and plants a certain relation to animals. Now, if all soils were alike, all plants alike, and all animals alike, the principles of agriculture would be exceedingly simple; but soils differ greatly in their chemical as well as mechanical composition; and as some plants are sweet, others sour or bitter; some nutritious, others poisonous; some annuals, others perennials; some are used as food, others used in the arts; others, again, for commercial purposes: therefore, the nature and composition of the soil, as well as those of the plant, must be well understood before the *precise* relation between the two can be determined, or rather before the *first* principle in scientific agriculture can be ascertained. How is this composition of the soil to be ascertained? *First*, by the study of geology, which teaches the origin, nature and composition of the rocks from which the soils have been derived; *secondly*, by chemistry, which teaches the specific composition of the soils. After having studied geology and chemistry, we have then learned the composition of the soil. Then with botany, vegetable physiology and chemistry, the nature and composition of the plant and its relation to soil may be ascertained. Thus we see that geology, mineralogy, botany, vegetable physiology and chemistry must be studied before we possibly can understand the *first* principle of scientific agriculture. What studies are involved in the *second* principle, or the relation of the plant to the animal? All animal life, except that of *carnivora*, is sustained by the soil through the medium of the plant. A study of comparative anatomy, a chemical analysis of all the tissues and structures of the animal frame, together with a study of animal physiology, with botany and vegetable physiology, are necessary for a proper understanding of the *second* principle of agriculture. And thus, as principle after principle is evolved, science after science is called into requisition, and study after study indispensable, until the student has completed a circuit of all the sciences involving any of the products of the soil, or conditions of nature.

Many collateral sciences are involved in the practical operations of farming; for instance, no farming is perfect or even profitable without more or less live stock. To rear live stock properly involves a knowledge of the laws of breeding and the proper care of animals, and the care of animals involves a knowledge of veterinary science. A knowledge of natural history, especially entomology and ornithology, is necessary to distinguish friends from enemies among birds and insects, and to know how to treat each of them to the best advantage for the farmer. And, as we live in a country where the business of the farmer is not merely to grow food and obtain clothing for his family, but to make some money in order to secure comforts and conveniences produced in other departments of industry, it is necessary that he should understand book keeping, in order to know precisely what every product he may have to sell has cost him, as well as to know precisely what his income and expenditure has been during the entire year.

A knowledge of mathematics is necessary, so that the farmer may be able to make surveys of the fields he is cultivating; to lay out roads, drains, &c., for why should a farmer be compelled to employ a professional mathematician for doing that which, with a little study, he can do just as well himself?

The farmer in this country wants a knowledge of architecture, for the reason that for many years to come farm buildings will yet be required; and he should be able to make plans, estimates, and direct the workman, so as to secure the most comfortable and convenient buildings at the least expense. In Europe the agricultural students are taught architecture, when there is apparently very little necessity for it—neither on the Continent nor in England are there any native forests to be removed and new buildings for farm purposes to be erected. I have seen houses in Germany which have been tenanted by farmers for hundreds of years, and may yet serve the purpose for hundreds of years to come. In Northampton and Leicester counties in England, I saw farm laborer's cottages which have been inhabited two or three or four hundred years. But here, our structures are more temporary, more light, airy, and elegant, and of course require more frequent rebuilding than there. In Europe an estate seldom passes out of the hands of the family—here a farm changes proprietors perhaps as often as twenty times during the life-time of the man who did the first clearing on it. Prof. Baron LIEBIG remarked to me that the Americans are the most extravagant people on the face of the globe in their buildings—this is true. In Europe buildings are erected with the intention of having them endure for ages—here they are much more temporary, and the consequence is that every generation improves on the former, and the dwelling for the poorer classes are much more convenient, comfortable, elegant and neat than those of the same classes in Europe, whilst none but the titled and very wealthy nobility reside in such palaces and luxurious appointments as the wealthy persons in

America. I have dwelt at greater length on this subject of architecture than the limits of this address warranted, but I have considered myself justified in so doing, for the reason that most of our farm houses and other farm buildings are inconvenient and uncomfortable; impose unnecessary cares and labors on the female portion of the household, and this alone serves, in a great degree, to make them discontented with a farm life; besides, it costs no more to build a comfortable and convenient house than it does to build an awkward and consequently uncomfortable one.

Chemistry is daily becoming of more and more importance to the human family—not alone in agriculture, but in every department of human industry. The man who smelts or casts iron, copper or lead; the man who builds a locomotive; the baker, brewer, cheese-maker, dairyman, the brick and tile maker, the wool dyer and scourer, as well as the druggist and physician, are the more competent men in their respective industrial spheres in proportion as they understand practical chemistry. Therefore I am much in favor of having a workshop attached to the College, where practical demonstrations and illustrations of the principles of the sciences taught in the College may be made.

There are few States in the Union as well adapted for cattle rearing as Ohio is; consequently, very few better adapted for dairying. Dairy farming and stock growing are more profitable than grain farming, and for many years will continue so; therefore, everything relating to dairy farming should be taught. It is susceptible of actual demonstration that, even by the best systems at present in practice, 25 per cent. of the cheese and 30 per cent. of the butter contained in the milk of the cow is not secured. Chemical analyses demonstrate that it is in the milk, but practice does not get it. There is no doubt these Agricultural Colleges will point out where the failure lies.

The farmers of Ohio have spent time, material, labor and money, to the value of several million dollars, in the aggregate, in learning *how* to make sorgho syrup. The sugaring process they have not yet acquired, and probably will spend several millions more in futile patent rights and experiments before *that* is attained. Now, with a proper Laboratory at the College, in charge of a competent practical and technological chemist, the best and cheapest process would have been ascertained at a comparatively small expense; and so of many other operations not strictly agricultural, yet connected with agricultural economy and industry.

I have deemed it proper to make these suggestions as to the course of study, because I find many gentlemen are under the impression that the Agricultural College is to be simply an ordinary literary or classical college, with the addition of an Agricultural Department. In my opinion, all the students should have taken the entire course of *general* studies before entering this College. If the Professors in this Agricultural College are to teach the primary branches, or even those taught in the grammar schools, then, in my opinion, the entire scheme will be a failure. The general studies can be pursued at the grammar schools and high schools at home; and no good reason has yet been presented to me why the Agricultural College should be content with, or insist upon a less thorough *preparatory* course than the ordinary literary institutions do. The common school course furnishes all the necessary preparatory course of studies; and the course of study suggested for the Agricultural and Mechanical College, contemplated by the act of Congress, is no more *class* education than is that at WEST POINT, or ANNAPOLIS, recently NEWPORT—all of these being endowed by Congress for special and *not* general studies.

In the educational course in the United States, the prevalent and great error of the European system must be guarded against, namely, *there* the entire course of instruction is adapted to the very limited future avocation of the individual. Outside of the primary studies there is no general course, but all is specific. The academies, colleges, real schools, gymnasiums and universities are all arranged for the education of the professional classes.

Up to a certain point, all youths, rich or poor, and whether the future of the youth is to be spent in mercantile pursuits, or be devoted to law, medicine, divinity, mechanics or agriculture, require the same and identical course of study, and that course is to be found in our common school system, ranging from the primary school to the high school. The collegiate or classical course is simply a *professional preparatory course*, or a more detailed and thorough high school or academic course.

The future avocation of the youth should not be determined before he has completed his academic or high school course. After he has completed that, he will have ascertained for what pursuit in life he is best adapted. By the time he has completed his high school course, he may, to his own surprise, find himself much better adapted for a very different pursuit in life from the one which he or his parents originally intended. It should be our main object to develop the capacity of the youth to its highest extent, and then engage in whatever pursuit it proves itself to be best adapted. In other words, the pursuit must be made for the man, and not the man for the pursuit; that is, we must not bring up a child with the pre-determination that it shall engage in a special vocation, for which it may afterwards prove to be entirely unfitted.

But when the youth has resolved to become a farmer or mechanic, then such facilities for giving him a special education, as contemplated by the act of Congress, should be open to him, as well as WEST POINT is open to the military and civil engineers, and ANNAPOLIS to the nautical profession.

After the reading of Mr. Klippart's report, Mr. Welsh offered the following:

Resolved, That the people of Ohio, through their representatives in convention assembled, tender their heartfelt thanks to the Hon. J. H. Klippart, for the able, manly efficient and dignified manner he has sought, both at home and abroad, to gain for the benefit of the agricultural interests of the people of the State of Ohio.

On this resolution Mr. Welsh remarked: We are here, the bone and muscle of the State, to represent the interests of the greatest people that live—the agricultural interests of the great State of Ohio. The history of the last four years has lately shown that. Several years ago I was here to attend a convention of this kind, and was first to offer a resolution to have the State Board award a premium for sorghum syrup, and machinery for manufacturing the same. I got it up as well as I knew how, for we desired to promote the interest of that branch of industry; but some of the sorghum gentlemen took offense and they went off to Cincinnati. We a'so tried to protect the wool-growing interest of Ohio; but a portion of our farmers seem to have "wool on the brain," or wool mania. Bless their dear souls, they are our children; their interests are our interests. We don't all grow wool, it is true, but we wear woolen goods. The wool of the sheep is the soul of the sheep, the indestructable part, that does not perish. Our woolen clothes are worn out, seemingly, but the manufacturer runs them into an institution called "shoddy," and that never wears out. The only institution of the kind that ever "GIVE OUT," that I know of, is the institution down South; and that, thanks to Father Abraham, has given out.

Mr. Brawley, of Athens, offered the following:

Resolved, That five hundred copies of the address delivered by J. H. Klippart, be printed in pamphlet form for the use of this convention.

Mr. Lang. Inasmuch as this paper has reference to Germany, and the Germans, and as the German element is so predominating in Ohio, I move to amend the resolution by providing for the publication of five hundred copies in German.

Mr. Welsh. I move to insert five thousand in place of five hundred.

Mr. Green. Are gentlemen aware of the expense of printing in German? Were it not for getting the matter before the General Assembly, I would be opposed to printing at all. I have as large a German constituency as any gentleman on the floor, and would like to have them read this document, but I shall have to vote against this amendment of the gentleman from Seneca.

Mr. Lang. The great paramount question before the agricultural people of the State, is this United States land grant of 630,000 acres, and the establishment of a school or schools for agricultural and mechanical purposes, and I imagine it is the great question before this body. The object in publishing this paper in advance of the annual agricultural report, in English and German, which would not be ready for distribution before next winter, is to prepare the people for forming correct ideas in regard to an agricultural college. There can be nothing done more practical than to bring before the minds of the people of this State the facts that have been gleamed by your Secretary, in his travels and in visiting those schools. And the members of the Legislature could not be assisted more ably than by having this paper laid before them.

I have very little hope of the success of this great enterprise, but the more light we have on the subject the better we can guide our steps. And the reference of the Secretary to the schools of the Fatherland, would cause the document, if published in German, to be snatched at by our German fellow-citizens, both as a matter of peculiar interest and of instruction.

Mr. Green. In consultation with the Secretary, I learn that it will cost only about $100 to print 1,000 copies in German or 1,000 in English, and will accept Mr. Lang's amendment.

Mr. Branch. If this report is good for anything, let us allow more than one thousand read it. I don't think one thousand copies amounts to a row of pins, so far as agriculturists are concerned. I am in favor of 5,000 in English, and should say 2,000 or 3,000 in German.

Mr. Lang finally accepted an amendment, to print 3,000 in English, and 1,000 in German.

On motion of Mr. Pope, the Secretary was instructed to forward a proportion of the documents so printed, to the different delegates of the Convention, for distribution in their several counties.

COMMITTEE ON BUSINESS.

On motion of Mr. Joy, a committee to report business for the consideration of the Convention was appointed by the President, composed of the following named gentlemen: Messrs. Joy, Glover and Jewett.

NOMINATIONS FOR MEMBERS OF THE BOARD.

On motion of Mr. Glover, the Convention proceeded to make nominations to fill the vacancies in the Board. The following named gentlemen were put in nomination:

James Fullington, of Union county; Nelson J. Turney, Pickaway; Wm. B. McLung, Miami; T. C. Jones, Delaware; Arvine C. Wales, Stark; Giles Boalt, Huron; Solomon Brecount, Champaign; Wm. F. Greer, Lake; John C. Jamison, Harrison; J. M. Roosa, Warren; J. P. Alexander, Summit; F. D. Parrish, Erie; H. S. Conklin, Shelby; H. B. Cannon, Crawford; A. A. Jewett, Cuyahoga; J. H. Branch, Clermont.

Mr. Jones. I am much obliged to the gentleman who proposed my re-election, and gratefully remember the honor that has been conferred upon me by two re-elections as a member of the Board. I can conceive of no more honorable position for a man who is qualified for it, and can render such service as the interests of Agriculture require. I confess to you that there never has been an association of my life, outside of family associations, that it is so hard for me to sever; but I feel that, under the circumstances, I must do so.

Mr. Nash. I don't know that we can force Judge Jones to act as a member of the Board, but it strikes me he ought to be re-elected. I think he cannot consistently refuse to act, in view of the fact that the interests of the State require that at least one member of the Board, who is conversant with the law, should remain in the Board.

Mr. Joy. I think I know the Judge sufficiently well to say that if we insist, he will not refuse to do his duty; and I think the interests of agriculture, and the organization to which we are attached, demands the re-election of Judge Jones, and I think we will re-elect him.

Mr. McMillen. I know the feelings that prompt Judge Jones. I know he feels that the custom established here, by which no member has heretofore been re-elected for more than three terms, influences him. But it does seem to me that there is pertinency in the consideration that the matter of the Agricultural College, absorbing so much of the interest of the State, and in reference to which he is so well posted, better than any member in the Board, demands that the rule should be overlooked, or disregarded for the present. I move that we do not accept his declination.

Mr. Green. I don't see any necessity for passing such a resolution. We know Mr. Jones is a good-natured man, and if the farmers of Ohio insist on his serving two years longer, I have no doubt he will do it. It is true that he has been devoting much time to this not very pleasant duty, but I believe he will forego this time his determination to retire.

Without taking a vote on Mr. McMillen's motion the subject was dropped.

Mr. Lang moved that a committee of three be appointed by the President to take into consideration and report upon the official report of the commission, recently submitted to the Governor, in regard to the location of the Agricultural College, and remarked:

I am satisfied that the report of this commission is contrary to the view of a large majority of the delegates who met here a year ago, in proposing to divide this fund; and I think it may be brought before this meeting in such a shape for discussion, as will enable us to give a decided expression of opinion.

Mr. Green. I am informed there are two reports—a majority and a minority report. I hope both will be obtained and considered.

On motion of Mr. Earl, the committee was instructed to examine both reports.

The President appointed the following gentlemen on the committee, viz: Messrs. Lang, Parish and Branch.

THE RECIPROCITY TREATY.

Mr. Greer offered the following preamble and resolution, which were adopted:

WHEREAS, The Reciprocity Treaty with Great Britain, which admits the agricultural products of certain of her colonial provinces free of duty, has proven detrimental to the agricultural interests of our country in its operation, therefore be it

Resolved, That we do most earnestly protest against any renewal of said treaty, and that we request our Senators and Representatives in Congress to make every exertion in their power to prevent such renewal.

COMMISSIONER OF AGRICULTURE.

Mr. S. D. Harris offered the following preamble and resolution, which were adopted:

WHEREAS, Believing that the interests of agriculture in the United States demand a change in the Head of the National Department of Agriculture at Washington, the Ohio Agricultural Convention do therefore

Resolve, That the President of the United States be respectfully and earnestly requested to appoint Hon. Norton S. Townshend, of Ohio, as Commissioner of Agriculture.

The Convention then took a recess until two o'clock.

CONTRACTION OF THE CURRENCY.

Mr. Welsh offered the following:

Resolved, That this Convention ask the members of the State Board proper to ask the Legislature of the State of Ohio to instruct the Senators and request the Representatives of Ohio in Congress assembled to use their influence to prevent the speedy contraction of the currency of the country.

Mr. Welsh spoke on the subject as follows:

The Secretary of the Treasury, in his report, says that we have $800,000,000 in circulation, and there are a great many people who are in favor of a contraction of the circulation, reducing it to a specie standard, which, I think, would be ruinous to the country. The Secretary recommends the issuing of $200,000,000 in 5:20 bonds, and taking in the greenbacks of the country, the best circulation we have. These $200,000,000 in bonds we will have to pay interest upon, and they pay no taxes. Suppose, now, that capitalists of Ohio should buy these bonds, and withdraw $200,000,000 from the tax duplicate, what would be the effect on us who plod along in the mud? Why, we would have to pay increased taxes equal to the amount which these $200,000,000 now yield. The time was when such a thing was justifiable; but the rebellion is over; labor is not any too high. Then why ask a speedy contraction of the currency? The greenbacks being a legal tender, are the only money with which we can pay our debts. No man can be compelled to take any thing else. Some say we have $200,000,000 of gold in the country, but this is not a drop in the bucket.

This is one of the questions on which I want the sense of this meeting, that the people of Ohio may know what to do. These "black backs," as I call them, are not a legal tender. The capitalists would buy up these bonds, and the greenbacks would be taken to Washington and burnt. The bonds will not become a circulating medium, but will be laid away, and not taxed, and we, the tax-payers, will suffer the burden of greatly increased taxation. Where will you be? Where will be the merchant that has bought $20,000 worth of goods? Where will he be? Where will you farmers of Jefferson county be who have every dollar you are worth in wool? Would you realize half the amount? Corn is selling to-day in Cleveland at 35 cents a bushel, and people complain that they cannot live. Wool-growers say it costs them $1.50 for labor; and if they can't live with corn at 35 cents, who can live? Contraction will benefit the men who have hundreds of thousands of dollars; it will benefit the poor widow of the soldier, but the mass of the people will suffer by it. The people of the United States are a commercial people. The man who has five dollars in money is not going to lay it away; he will find something to purchase, if it is only to sell it again. You who represent the agricultural interest, rise in importance above every other interest. Every sea is whitened with the products of agriculture.

The great Webster said that "no man was ever born so high, or fell so low, as not to be affected by the prosperity or decline of agriculture." And now, as Mr. Greely says, "The farmer wants to know what he will have to pay for hired hands next year, in the production of the world's wealth. He is the man who should control the sentiment of this country. The currency of the country is the life of the country; it is what we do business upon; it is what we must have. Curtail the currency, and where are you? Where are you who bought farms last year? Where is the merchant who bought goods on credit? Where is the manufacturer? Is it going to enable us to pay our taxes? To pay the Government debt? Here I pay, on my little property, State and county taxes, eighty dollars. If they will let the thing alone, and increase my taxes to one hundred and sixty dollars, I will be much obliged to them. We don't expect our taxes will be reduced just now. It is one thing to be elected to the Senate of Ohio, and another to make good laws for the people of Ohio. If you withdraw the greenbacks from the country, you take the life-blood out of the country. Undertake to redeem by gold, and you will run things into the ground, and ruin the Government.

This is one subject on which I wish to ask the sense of this Convention. You represent the agricultural interest, and beside it every other interest falls to the ground. Talk about resuming specie payment with $200,000,000! Why, the whole South is without a dollar, having sent all its gold to Europe to buy arms to carry on their hellish rebellion. These $200,000,000 worth of bonds could be all taken in Ohio; and if taken off the tax duplicate, what an increased burden will be thrown upon other taxpayers.

Mr. Green. Though I seconded the resolution, I did not propose to vote for it. I was aware that my friend had prepared himself with a speech, and was anxious to get his views before this Convention. I have no doubt that, if we were to pass the resolution, the House of Representatives in Congress would take it under consideration; but my observation leads me to the conclusion that instructions to legislative bodies have little weight with those bodies. And as I am not disposed to give my counsel where it will amount to little or nothing, I move to lay the resolution on the table.

The motion was agreed to, by almost a unanimous vote.

REPORT OF THE COMMITTEE ON BUSINESS.

Mr. Joy, from the committee appointed to report business for the Convention, submitted the following:

I. *Resolved*, That the improvement of Agriculture, Horticulture and the Mechanic Arts, in their various departments, should be the main and only objects of county societies; that all swings, shows, pedlers, and everything whatsoever that tends to direct the mind from the great object sought to be accomplished, should be kept not only from within our Fair grounds, but a reasonable distance therefrom.

Resolved, That the social culture of our people is eminently desirable, and that our Fairs properly managed, furnish fine opportunities for such culture.

II. The source from which the appointments of trustees and general management of our State Agricultural College should emanate.

III. What are the wants of American Agriculture?

IV. *Resolved*, That the great want of American Agriculture is a more general and thorough mental culture of its votaries; that our sons and daughters should be as thoroughly educated as those of other professions.

V. *Resolved*, That the County Commissioners should be required by law to contribute to County Agricultural Societies an amount equal to what may be contributed by individuals for the purchase and improvement of County Fair grounds.

VI. *Resolved*, That we heartily concur in the resolutions adopted by the Ohio Wool Growers' Association asking Congress, to assess a tax of TWO dollars upon all male dogs, and FIVE upon females.

T. F. Joy,
J. M. Glover,
A. A. Jewett,
Committee.

Resolved, That the committee of the National Manufacturers' Association, to meet the United States Revenue Commission, be advised to recommend to that commission that a tax be levied on dogs sufficient to raise a considerable revenue for the government, or materially diminish the number of dogs in this country, or both. Adopted.

Resolved, That in the opinion of the Ohio Wool Growers' Association, such tax should be not less than $2.00 per head on male dogs, and $5.00 per head on females of the same species. Dropped.

On motion of Judge Jones, the report of the committee was accepted, and the first topic taken up for discussion.

SIDE-SHOWS AT FAIRS.

Resolved, That the improvement of Agriculture, Horticulture, and the Mechanic Arts, in their various departments, should be the main and only objects of County Societies: that all swings, shows, peddlers, and everything whatsoever that tends to direct the mind from the great object sought to be accomplished, should be kept not only from within our Fair grounds, but a reasonable distance therefrom.

Resolved, That the social culture of our people is eminently desirable, and that our Fairs, properly managed, furnish fine opportunities for such culture.

Mr. Green. I would like to hear from Mr. Branch, of Clermont, who comes from a county where they have these outside shows, and where they have successful Fairs too, I am told.

Mr. Branch. I have been somewhat connected with the Agricultural Society of Clermont county for seventeen years, working at one end or the other. I am satisfied that these outside and inside shows are all wrong. We have resorted to them from the fact that we have been a little crowded for means. We admitted side-shows, fast horses, and almost all kinds of amusements, for the sake of bringing out the people, and have succeeded in getting out large crowds and considerable money. So far as we are concerned, my opinion is that we shall t[illegible]o get rid them. I think we can go alone now. When there is a littl[illegible]cking in the programme, and we allow the people to go off to the side-shows, it is hard work to get them back. The best we can do, in the examination of stock, they will get away to the swings and side shows, and nothing but a horse race will bring them back. But I think if we were to have purely agricultural and mechanical Fairs, we would still be able to induce the people to come out. Hence I shall go against side-shows hereafter.

Mr. Conard. I have been connected with the Fair in Highland county for the last ten or twelve years, and frankly own that I at one time took an active part in opposition to side-shows, and succeeded a few years ago in moving them out; but I now frankly own that I have changed my opinion. I find that our funds get low, and the crowd small. And beside, if we don't let them in, they will fix themselves up outside. They come a great distance with their monkeys and fat women, and they will get together in a huddle somewhere outside, as we saw them here at the last State Fair

They will make a mess around us not agreeable for sober, moral men to look at. When we have them inside, we have them under our control, and receive a good deal of money from them. We rented the right for a swing for $35, which was perhaps too low. We must resort to some means to get the people inside, and, as the church people say, if we once get them inside, they can't help but imbibe some good, and we will get their money. I am decidedly in favor of letting them all in.

Mr. Joy. The gentleman is in error in thinking societies cannot keep them away from the immediate outside. We have a statute which gives us power to keep them from within one-fourth of a mile of the grounds. At our Fair last fall, a man with a swing offered us $70 a day to get inside, but our society refused, and it would have been no temptation if he had offered us $10,000. He threatened to annoy us by setting his swing up outside. I informed our Chief Marshal to warn him that if he did so we should enforce the law. The gentleman very soon packed up his traps and left. We have kept everything away from within one-fourth of a mile of our grounds, and all will testify that our people were benefitted by being there. We claim to have an intelligent people, that can appreciate improvements in agriculture—that do not require a circus rabble, nor any thing to gratify such curiosity. The cause of agriculture demands that our agricultural societies should adopt this rule generally.

I wish to add that money-making is not the object of our association. We may have, financially, a successful Fair, and yet the great object of the society a failure. We had better lose a hundred dollars from those interested only in horse-races and shows, than lose the influence of one good intelligent farmer; and I know of places where, these shows being admitted, the best farmers refuse to let their families come under such influences.

Mr. Branch. I hope the gentleman does not understand that in Clermont it takes a horse-race to bring our people to the exhibition; but that after they are there, and have been drawn away to the shows, it takes a horse-race to bring them back.

Mr. Green. The gentleman from Delaware county, many of us are aware, comes from the centre of the influence of a great institution of learning. I am glad to find that the people in Judge Jones' county have become so highly educated that none of them are desirous of going to see those side-shows. Unfortunately for my friend from Clermont, they have no such institution of learning in his county, but if we can get up an agricultural college in every county, we will soon have the people educated up to such a point. I shall vote for the resolution, although my people in Hamilton county are great on shows. But many of them are just as intelligent as the gentleman's constituents in Delaware. I suppose, however, that if we pass the resolution, county societies will pay but little attention to it. If they are in debt, I think they will yield to the temptation of admitting the shows until they pay their debts. I admit that such things divert the attention of our boys from what is more useful to them.

Mr. S. D. Harris. What has been the average attendance in Hamilton county Fairs for the last five or six years?

Mr. Green. Hamilton county never holds a fair unless it can be made successful. As the grounds have been occupied for four or five years past by three or four thousand mules and horses, we have not found it expedient to crowd in. They have eaten up nearly everything in the shape of fixtures, and there will have to be a good deal of work done before we can occupy it again.

Mr. Pope. I would like to know what the attendance has been in Delaware county, where they don't admit the side shows?

Mr. Joy. The receipts have exceeded the expenditures somewhere between eight and nine hundred dollars. It would swamp our society if we were to admit these shows.

Mr. Green. It has been my fortune to attend a number of fairs the past autumn. There is the fair of Summit county, which I can bear witness was a good one. As the President is here, I would like to hear from him as to its financial success.

Mr. Alexander. We have two societies in our county, though they are not antagonistic. One of them is a district society, and includes the townships of a few adjoining counties. The fairs about us are generally held before ours—about the middle of September—and I should say that the township societies are a help to our county fair. This is our seventeenth report that we bring here this year. We first leased the ground, and got in debt by bad management. Five years ago, I took hold of the society with $1,000 indebtedness. We have spent $5,500 in improvements, and took in this last year $3,537.05; leaving a surplus of $1,100. So far as the management of the society is concerned, we act upon the principle of justice to all men. Our fair gives good satisfaction. We pay good, liberal premiums, $1,800 last year. Formerly, we had horse-trotting, but many good members objected to it. I felt that a good agricultural society need not have any such thing in it. If your premiums are properly arranged, and money enough offered, you will have a successful fair, on agricultural principles. We have permitted swings to come in, but no shows or persons exhibiting games of chance. We have allowed no spiritous liquors on the ground, and have very orderly, quiet fairs. This year our entries will number 1,000. We charge nothing for entries, except for sweepstakes. Our admissions have been a dime for each person. We sold family tickets, admitting all who could get into a two-horse wagon for $1.00. We now print our tickets with coupons, admitting six persons, or one person six times. We have 390 members reported here, but our members are probably nearer 500. As to side-shows, our grounds are situated half a mile from the village. We permitted groceries to come in; but we have not had in the grounds any show of any kind except one or two swings. We had no fast riding. Four years ago we offered $100 for the best trotting horse, and $75 for the best riding horse. It drew a crowd from a distance, but not of the best character. It did not draw the money either. It don't pay so well. After that we offered $20 for the best trotting horse, to be confined to our county, but we had so much to do that I was glad to have the thing pass over without coming off.

Mr. Wrenn, of Morrow county. We are trying to make improvements in agriculture and horticulture, and the mechanic arts. We have fast men and fast horses, and some among us who desire to have shows in the fair grounds; but we have found, from experiment, that for the good of our society, financially and morally, it is better to exclude fast horses and shows, not only from inside, but outside, as far as the law allows us to keep them away. For some years, we allowed some of them in, but we found that the shows kept away many men with their families who would have come, and those who came, instead of examining machinery would be running helter skelter, causing the police a great deal of trouble and requiring a double police force, and causing more expense, besides losing the benefit of our best citizens. I am in favor of keeping all such things, as far as possible, from the grounds. I am in favor of trying the speed of horses, but not of making a race course of our grounds.

Mr. Roosa, of Warren county. I have been a member of the Board of our county for a number of years. We have frequently, in former years, let in these shows. This was when we were young. My experience is that these shows are a perfect humbug. If they do not humbug anybody else, they will humbug the President of the society. He will be annoyed from the first day by this one and that. They are a perfect nuisance. As to money-making, I am satisfied that no society in the State makes $200 by them; and half of them bring in jugs of whisky with them, and have a lot of fellows drinking about them. I have been astonished that the managers did'nt drive away these fellows from the State Fairs. I am opposed to fat women, big men, and monkeys, although I am pretty large myself. My friend here said he was opposed to fast horses. I am satisfied that many fairs have gone too fast on horses. But a horse that can trot at the rate of 2:40, everybody wants to buy; and if a man has such a horse, it is necessary he should be shown at the County Fair Ground, and at Union Fairs. How you can get clear of giving premiums for fast horses, I can not tell. If you want to bring the girls and women out, you will have to admit the fasthorses. Even the clergymen are attracted by them, and get excited on seeing their speed, one of them, recently, expressing his feelings in my hearing by the exclamations, "He goes like blazes." Our fairs are generally well attended; this year not so well, although we had fast horses. We had a good show of hogs, that could not be beat, and a tolerable show of cattle.

Mr. Joy. If our friend will come to Delaware, we will not refuse to admit him, unless he comes shut up in canvass.

Mr. Anderson. I have had some experience in the last fifteen years in this matter. We have used discretionary powers as to the side shows. When we have thought there was nothing in them having a tendency to corrupt the young, we have admitted them. I think we have had no fat women or monkeys, but we have had some swings, and a place where a cotillion party might enjoy themselves. We have had more trouble to keep out venders of patent medicines and such things, that pay very little. Our report will show that we have been pretty successful.

Mr. Welsh. Last fall I visited the Fair at Sandusky, and I think no Fair in Ohio could have met with better success. The people were there with their fast horses, and some of them with their fat women. If a woman happens to get very fat, and wishes to exhibit her great corporeal system at a fair, whose business is it? Are you gentlemen who represent the farming interest of Ohio, coming up here to exclude them from your fairs? Where is the man so mean, so contemptible, that he would not let his manhood rise above such prejudice, and let the fat women in? (Laughter.) People get fat, and you can't help it. The gentleman over there, from Warren, admitted he was fat, and he comes from the best part of the State. Where men or women are so fortunate as to live in a portion of the State where they get fat, are they to be kept out of our fairs on that account? (Great laughter.) The President of the Fair at Sandusky can tell you of the success. There were fast horses there, and fast women, and why should there not be, in this great and fast country? The country has made one mistake in not electing members of the Legislature by joint ticket.

Mr. Donnelly. I think as, we live in different parts of the State and have different tastes to cater to, it will be best to let each society manage for itself in the way it shall think best. The State should be districted, and each member of the Board required to make it his business to visit every county fair held in his district. He would thus be better educated in his duties than he could be in any other way. We, as members of the board, do not sit here long enough to become acquainted with the manner of carrying on this business. These agricultural societies are just as important as the school or church, in the education and cultivation of the characters of our people. What we are seeking is, the best manner of developing our great resources.

Mr. Lang. I have listened, with pleasure, to the arguments on both sides of this show question, and I am satisfied that the management of these things should be left in the hands of the different officers of the several county fairs. I don't think this Convention should attempt to control them, and I therefore move to lay the resolution on the table.

Mr. Joy. The resolution is merely advisory, and not intended as a rule to govern county societies.

Mr. Pope. I question whether, in our locality, the little county of Geauga, which is not a manufacturing county, and has nothing with which to draw out any article of manufacture, we could get the people to come out in sufficient numbers to pay expenses, simply to look over a few cattle and sheep and horses. They want something a little more exciting. These side-shows may be demoralizing to some extent; but if the people go there, and feel like going into one of the e shows, I think it is nobody's business but their own. There is a class of men who desire to cut off the exhibition of fast horses and such things. When this is done, and no premiums are offered for fast driving, we won't get the people there, and won't get the money necessary to run the society. The passage of such a resolution, though not binding, will help to strengthen the objections of those who oppose them. Although not conducive to improvement in Agriculture, these things tend to social enjoyment, which is not incompatible with the object of county fairs.

Mr. Roosa. I am opposed to laying the resolution on the table. This Convention has appointed a committee to report a programme; it has been reported, and we have discussed one of its recommendations thoroughly; all have made speeches, and it will make us look ridiculously small, now to lay the resolution on the table.

Mr. Jameson. It is well understood that the great interest of Harrison county is the growing of sheep. We have never had a failure in our fairs. I have made inquiry as to the average attendance, of one of its officers present. Not knowing the exact numbers, but, being a surveyor, he made a calculation, and thinks they would amount to four acres. [Laughter.] Our receipts were $2,500; but this is a small sum for the number. We are a very liberal people up there. We issue a family ticket that will take in a dozen or twenty. Our expenditures have been $2,000, leaving about $500 in our treasury, to begin improvements with for another year. As to fast horses and cattle, we have not discarded them, but have not encouraged them as other societies have. As to swings and shows, our Board have admitted them. We don't admit the sale of intoxicating liquors; permit no gambling or lottery schemes on the ground. I am, however, opposed to the adoption of the resolution, believing there is good judgment enough in the management of the societies generally, to admit such things as they see proper. What may be for the interest of one society, may not be for another.

Mr. Brawley. This question I consider advisory, altogether, and as we should be regarded as the wisdom of the several counties, it should be known whether we are in favor of monkey-shows, or in favor of the real interests of agriculture. As we are in favor of the improvement of the morals of our people, as well as of agriculture, it might be as well to include many of these things. We hold our Fair under the eaves of the old University, and think there is intelligence enough in Athens county to be interested without these shows.

The motion was then taken to lay the resolution on the table, and declared lost.

On the adoption of the resolution, the vote, taken by yeas and nays, resulted—yeas 24, nays 32, and it was declared lost.

On motion of Mr. Lang,

The second and third subjects were passed over for the present, and the fourth taken up, in order to give Mr. D. E. Gardner, of Toledo, opportunity, at this time, to present his views on the Agriculture College question.

On motion of Mr. Jones,

All persons present, interested in agriculture, were invited to take part in the discussions of the Convention.

THE AGRICULTURAL COLLEGE QUESTION.

REMARKS OF MR. GARDNER.

Last year, when I left this Convention, I thought I had addressed you for the last time on this subject. I was appointed one of the Commission to report on the subject, and have attempted to do what seemed to be my duty in the matter, and have given it constant attention during the past season. Though we had given the subject much consideration for several years past, and have discussed it here each year, yet I felt that my views were somewhat crude. It required time, consultation and reflection, before I could crystalize them into practical shape. In the course of this examination you may readily suppose my views underwent more or less change, owing to the weight of considerations presenting themselves.

In the first place, we found the fund attacked by the existing colleges of the State, representing, as they do in a great degree, the intelligent population of Ohio. For, considering them in their denominational and local relations, they exert a wide spread influence over the people of the State. They deem it for their interest, and for the interest of education, to ask of the General Assembly, a division of this fund among the existing colleges of the State, under this plea: that there were already colleges enough, and that the interests of education and of the people would be subserved by enhancing the usefulness of these institutions, rather than by increasing the number. They pointed to the fact, and not without force, that the experiments in this country and in Europe for the establishment and endowment of agricultural colleges, have been almost without exception failures. They did not need to remind the General Assembly that the Treasury of the State was sufficiently burdened by the expenses of a great war, so that we could not expect any appropriation from the State for this purpose. It was not strange that the General Assembly was inclined to, and was on the point of, dividing this fund, as has been done in other States, among the existing institutions.

This Board, last year, took firm and decided ground against this division, or diversion, of the fund. Some of the old colleges of the State were represented on this floor by gentlemen who pointed out to us, in startling terms, the difficulties and failure we might expect, if we tried the experiment we anticipated. But in the face of all this, we passed a resolution requesting the General Assembly to take measures to organize an Agricultural College under the act of Congress proposing a college grant. Accordingly, the Legislature passed a resolution authorizing the appointment of a commission to visit localities proposed, receive propositions, and report upon them. The Governor selected five commissioners, of whom I had the honor to be one. We entered upon our duties with reluctance. We had no preconceived notions on the subject, and felt the difficulties of the task.

We were assured, in the first place, that gentlemen in the city of Columbus, the Capital of our State, of which we are all proud—this wealthy city—would contribute two or three hundred thousand dollars towards an enterprise like this. We were assured that in other central localities there would be similar liberal offers; and we were encouraged to hope that from such promises the State might establish, on clean ground, an institution that might shed benefits over the State at large.

But when the commissioners met here occasionally, and courted such offers, we failed to get them. Our hopes were not realized; and the time drawing near when it would be necessary to make our report, we looked over the propositions that had been made to us. They were chiefly from remote parts of the State, and, as the result of our examination, we had no hesitation in coming to the only conclusion that we could come to, that the only place where we had the means furnished for establishing an institution of this kind was at Miami University. That University is conveyed to the State of Ohio, in trust—the trust accepted forty years ago, which it is not only the privilege of the State to exercise, free of encumbrance, but it is the duty of the State to exercise it.

Miami University has 100 acres of beautiful land, admirably located for building and improvements, and some experiments; in the midst of an agricultural country of rare healthfulness, fertility and culture; within easy access, and yet sufficiently removed from the moral contamination of a great city, to be available for frequent visits to the manufacturing establishments of Cincinnati. It has $15,000 of accumulated funds in the treasury, which may be expended in the improvement of the existing buildings. There is the pledge of the present Trustees—the Alumni, extensive and wealthy as they are in that region of Ohio, the neighbors and friends of the institution—of $100,000 for the erection of new buildings. And there is a permanent, reliable endowment, yielding $6,000 a year for the support of the Professorships. Here, and here only, had we the means furnished for carrying on an institution without the expenditure of a single dollar from the State; so that it need not be such a failure as to forfeit the congressional grant. We could stand here permanently, and forever. The endowment cannot be squandered, because it arises from annual rents. There is no way by which the institution can become an utter failure. Amid all the drawbacks of the war, they have, beside carrying it on, and beside educating a number of soldiers required to be educated by the State, laid up $15,000. We looked at the matter in a business point of view, in the endeavor to establish a college which, if not an eminent success, should not be a failure. And bearing in mind, as you are aware, that it is necessary we should, within the coming year, establish this institution, we came to the conclusion that Miami University alone could enable us to meet the requirements of the grant.

To pave the way for it, the present Faculty were displaced. But there remains the present intelligent Board of trustees; they were still in office; and I suggested that the next thing for them to do was to displace themselves. They said it was in the power of the General Assembly to do that. We said we would not recommend the acceptance of the institution if it involved such a necessity as that. They immediately sat down and wrote out their own resignations, to be held ready for presentation if their proposition is accepted. So that the State has a clean sheet for one hundred acres of beautiful land, surrounded by institutions of learning, within a short distance of Cincinnati, in the midst of the rich valley of the Great Miami, with old buildings it is true, but with $15,000 on hand to put them in repair, and with a pledge of $100,000 to erect new ones, and with an annual endowment fund of $6,000 arising from a permanent investment.

But we have not supposed the State would be confined to one experiment of that kind, and have suggested that this fund may be divided. You will remember that we cannot expect to derive more than $500,000 from the sale of land-scrip. The State has in its hands a fund equal to one-half of that—$250,000—so that we need to expend but that amount. We therefore suggest that this fund be divided, and that the other half be set apart to await the issue of time and experience, and such offers in the north of the State for a kindred experiment, or one based on a different mode of instruction. So that, if we do not build up a single great institution, we may do that which shall be for the greatest benefit for the State at large.

I may say further, that when a thing becomes inevitable, I act not upon the principle that what is, is right; but what is, we will labor to make as right and useful as possible. To do this it is necessary that we put our shoulders to the wheel, and make it as near what we want it as we can, and give it a united and hearty support, in the hope that it may prove a success there, and hereafter profit by the experience there gained. There may be a better institution established than Miami University. If it shall be thought necessary to keep up more scientific and classical instruction there, than we deem proper, let us in another school try a different mode of instruction, and let the two institutions run along in generous rivalry with each other, and with liberal and harmonious views make the institutions twin brothers, for the advancement of that great interest which we all have so much at heart. We have little to expect from foreign experience, as you will learn in reading the able report of the Secretary of this Board. And from other sources of information we gain but little light in the pathway of the future; the most we can expect is to avoid any great blunder, until the events of time shall bring forward and develop men who are calculated to inspire our own farmers and mechanics with loftier ideas of the pursuits in which they are engaged.

I do not anticipate so much from the experiments of agricultural colleges upon the soils of Ohio as I do upon the minds of Ohio. Everything depends upon that. What goes to elevate and ennoble man as that for which we labor, our farms and workshops are of little account; it is our boys and girls we wish to advance, they will take care of their farms and shops.

The primitive object of the institution shall be to turn their direction in the practical pursuits of life which shall prepare them for the active business duties of this busy age and country. I should trust that an institution of this kind starting out not for the purpose of running across the track of the farmers' educational enterprises, but endeavoring to run in harmony with them, would direct influence in the practical pursuits of life, might have influence on the other colleges and institutions. I desire not to start up an institution with dishonorable rivalry with them but rather in harmony; and to develop their wants in educational matters. To this end I have thought it might be better not to try to establish a new institution but take hold of one now in existence. We will turn it in the direction indicated by the act of Congress, and of the General Assembly.

This subject has so many phases that time and strength would fail me as well as your patience, to discuss it in all its length and breadth. The subject of education is the highest and most far-reaching of all the interests that affect us. Upon this education depends the perpetuity of our institutions; for it is to the people that these institutions are entrusted. Let us trust, that whether or not you approve the humble action of this commission, you will take up with this or some other plan, so that the General Assembly will not be left in the dark or turn in some other direction, for the time is short in which we can avail ourselves of this grant. A little dissention among ourselves will be enough to lose all its benefits.

In our report we have endeavored to encumber the subject as little as possible with details. I ask you not from any personal considerations—for, personally, I would rather you would adopt any other plan than mine, I shrink from the responsibility of presenting any plan—but having been upon the commission, I ask a favorable consideration of our labors, that if you do not commend it you may at least present a better. I care not if it be an entirely different course, so that it secures the object we desire—the elevation and education of the industrial people of the country.

On motion of Mr. McClung, the further consideration of this subject was postponed until after the report of the committee to-morrow.

On motion of Mr. Green, the second resolution was postponed until the same time.

The third resolution was then taken up.

COUNTY COMMISSIONERS AND COUNTY FAIR GROUNDS.

Mr. Donnelly. I think there is liberality and enterprise enough among the agricultural people to carry on these affairs without help. It was necessary, perhaps, when they were young; but the more you leave them to the care of the people, the more attention and responsibility will they feel for them.

Mr. Green. I move to lay the resolution on the table.

Mr. Joy. It was not designed that counties that had heretofore paid should be asked to pay more. The resolution was introduced at the request of members who represent societies that have no grounds, and desire their county commissioners to give them the same advantages that their societies had enjoyed.

Mr. Jones. There is a statute on the books that allows commissioners to do just what they ask.

Mr. Joy. It is discretionary with the commissioners to do so or not, and this resolution makes it imperative.

The vote was taken to lay the resolution on the table, and lost.

Mr. Green. The resolution says the commissioners should be required to contribute; but I do not know that we have any power to compel them to do so, and the resolution would be harmless.

Mr. McMillen. The law says that in case societies go down, the property all reverts to the county, so that there is no loss sustained by the county. In the county in which I live, we have been much retarded in our efforts for the want of such a provision.

Mr. Parish. I represent the agricultural society of our county. We have no rival society in the county. We held, last fall, an annual Fair, the character of which, my friend has spoken of in a way that modesty would forbid in me. I feel gratified with our succes, and we need only a little aid from our county commissioners to place us on a basis where our prosperity will not only continue, but be greatly increased. I favor the passage of this resolution, that it may have some influence in accomplishing this object. It is an interest common to all the people of every county. It is not a class or party interest, but embraces the whole community; and if the people of the county are disposed to use that method of dividing the burthen of purchasing and fitting up Fair grounds, why should they not have the law? There are their commissioners to carry out their wishes. Our Fair grounds have recently been located upon a beautiful piece of land adjoining our city, consisting of ten acres. It has been purchased at an expense of $4,800. The people by subscription have raised about $5,000, and expended it in fitting it up in the most commodious and durable manner. Three-fourths of the tax-payers of the county are desirous that the county should help pay for, and become the holder of the property; and if the society should fail to use it for the purpose designed, it would become the absolute property of the county. This land would to-day sell for $6,000. They are in favor of expending a surplus fund already in the county treasury for the purchase of that land. This $4,800 distributed among the tax-payers of Erie county, would be 28 cents on each $1,000. Who would feel it? Not an individual in all that county. It would be the most equitable way of raising that fund. If the present law does not authorize the commissioners to make such an appropriation, it should be amended. If the majority of our commissioners are not in favor of making this appropriation, the next fall election in our county will place in the Board of Commissioners such men as will favor it.

Mr. Conard. I would like to inquire whether it is intended that societies that have purchased grounds and are in debt for them, shall have the advantage of this measure? If it will extend to such societies, I think it will be very desirable to pass the resolution. The county which I represent would be greatly benefitted by it. It would relieve us of great embarrassment. I look upon these societies as I do upon the common schools: there are some people who would not support them if they could help it, but being compelled to do so, they derive an equivalent advantage.

Mr. Jones read the law on the subject.

Mr. Glover, of Logan. I look upon this proposition as of great importance. Many counties have derived advantage from the present law; but without the adoption of this resolution, and the amendment of the law, a large portion of the State will suffer deprivation of like advantages. I think, in justice to our people, we should ask for the amendment. It would increase the taxes. If I were governed by such considerations, I would not favor it. Take Champaign and Logan counties, lying side by side. Champaign has been liberal; her commissioners have appropriated an amount equal to the amount subscribed by the society; while in Logan, our commissioners have held back since it was left discretionary with them. We have neglected the matter, and not chosen different men. Our counties incur no risk of loss; for should the societies go down, the property reverts to the county, and it is better off than before.

The resolution was then adopted.

EVENING SESSION.

ELECTION OF OFFICERS.

On motion of Mr. Green, the Convention proceeded to the election of members of the Board for the ensuing year.

Mr. Jameson withdrew his name as a candidate.

The result of the ballot was as follows: James Fullington 38, Nelson J. Turney 53, Wm. B. M'Lung 43, T. C. Jones 44, Arvine C. Wales 12, Giles Boalt 8, Solomon Brecount 2, Wm. F. Greer 36, John C. Jameson 3, J. M. Roosa 11, J. P. Alexander 31, F. D. Parrish 7, H. S. Conklin 8, H. B. Connor 5, A. A. Jewett 7, J. H. Branch 16.

The number of votes necessary to a choice was 33, and accordingly Messrs. Fullington, Turney, McLung, Jones and Greer, were declared duly elected.

THE TAXATION OF DOGS.

On motion, the Convention took up the next resolution recommended by the Committee on Business.

Mr. Stedman, of Portage. You are looking in the wrong direction for protection against this pest, the dogs. There are laws now on your statute books that are a dead letter. You must look to your own neighborhoods, to make these pests an outlaw, and make it to a man's credit for him to say that he has killed a dog, or scalped his neighbor's most valued animal. You must make dogs a nuisance, by correcting public sentiment at home.

Mr. Welsh. Every time I come up to Columbus I hear this everlasting dog law discussed. Why do you want to annihilate the dog race? The same God made the dog that made the sheep. He was made for some purpose, for we are assured that nothing was made in vain. It is true he is in the somewhat questionable position of the man's coon dog. His neighbor wanted to buy a good coon dog, and he sold him one of his. After awhile the neighbor met him, and said, "I thought you told me that dog was a good coon dog." "Well, ain't he?" "No; he don't know a coon from a pig, and wont run for either." "Well, he wasn't good for any thing else, so I thought he must be good for coons."

You want protection? A man invents a sleeping car—one of those pestilential contrivances that the world would be better off without. He invests a large amount of money in their manufacture; as, for instance, Mr. Woodruff at Mansfield. Suppose he should come down and ask the Legislature to give him two or three men to guard his factory, or guard his bank, where he has $100,000 laid away, what would you say? You would say he was a fool—that he hadn't brains enough to invent a sleeping car. If you have money enough to invest $100,000 in sheep, take care of them, and let poor Tray alone. He is the only animal in all creation to forsake his species and follow man.

Let poor Tray alone. I never owned a dog in my life, but I have as good a right to raise dogs as any man has to raise sheep. Attend to your fold, take care of your flocks, and the dogs will do no harm. A tax of two dollars on dogs, and five dollars on female dogs! I have known men who were owners of dogs that you could not exchange the best $3000 buck for. They set as much estimation on their dogs as some wool-growers do on their flocks of sheep; and yet they are to be killed and sealped, and they who do such things honored for it! The dogs are to be taxed out of existence! The great illustrious Senator from Ohio, away off in Washington, says that the phrase "dog tax" has nearly killed him. Ask the Legislature of Ohio to tax dogs? What would it amount to? Send men down here, at three dollars a day, to legislate on dogs! No wonder they complain at the wages, and the work you ask them to do likewise. Now let the dog alone, and take care of your sheep.

If my dog does you an injury, I am responsible for it. If you begin the work of giving protection to wool-growers, at other people's expense, you will have old Woodruff and other bankers asking you to guard their banks against burglars. There are men running around at night, in all our large towns and cities, who are meaner than the meanest dogs in the country. They will meet you in an alley, or on a street, and take your Greenbacks from you. They run unpunished and unhung; but poor Tray is the only animal you would wipe out of existence. You would destroy the work of God. I am astonished to see intelligent men, with brains and muscles and bones, spending so much time in regard to dogs. Mr. Delano—the great illustrious Columbus Delano—made a speech on dogs here on one occasion. Yesterday some one was speaking in this Convention on the price of labor in the production of wool. He said he procured men for $1.50 per day. What is $1.50 per day, for a man to watch your flocks, compared with the risk of having them destroyed by dogs? Here there are hotels in Columbus, whose landlords have large amounts of money invested in them. They might as well ask the Legislature to protect them and their property; but instead, they employ their own night-watchmen. They keep men constantly, day and night, looking after their interests and the property of their guests.

You don't hear of sheep being killed by dogs in England. The sheep-growers there are not so neglectful of their duty as to let their flocks go without attention. The shepherd is always with them, summer and winter. You sheep-raisers of Ohio must learn a lesson from them.

Mr. Buckingham. My average losses by dogs has been over $500 a year. It is true I can, under the present law, kill any dog that I know has molested my sheep. I have tried this method. A year ago last fall I had several ewe lambs killed. I put strychnine on them, and left them. A few days afterward some fellows, whose dogs had been feeding on my lambs, took a sharp hatchet and cut all the sinews of the legs of one of my mules. That was poor consolation. A few weeks ago some of my lambs were killed, and I tried strychnine on them again. Only a few days passed when I found my best cow killed. On opening her body, I found that she had died of arsenic. Thus, the present law is no protection to us. When Congress proposed a revenue tax of one dollar per head on all dogs, I think there were more than a hundred dogs killed in my neighborhood. Their owners were afraid they would have to pay their dollars The present State tax of 25 cents is so small that it is not thought worth attending to, and is not enforced. If we can get the United States to tax them two or three dollars per head, and require them to be collared, we would get rid of the worst of them.

The resolution was then adopted.

THE WANTS OF AMERICAN AGRICULTURE.

The next topic in the report of the Committee was taken up, viz:

"What are the wants of American Agriculture?"

Mr. McLung spoke as follows: This question is a broad one, embracing the subject of Agricultural Colleges—the development of the soil in every particular—so broad that it is with difficulty any one can grasp the theme. But in the hope that we may bring out something on the subject, I would suggest that one of the wants of American agriculture is, that we shall have good Farmers' Clubs, in which we may meet together for individual and collective improvement. It appears to be a well understood fact, that until recently we have not come together and acted in concert.

If there is any one thing outside of financial questions that is desirable by the farmers and mechanics of Ohio, it is that they should act together in concert. Without this we connot succeed to the extent we ought. All the different interests of mechanics and agriculturists are harmonious, and they should act in concert with each other. When we shall present such a front, we will command and secure the consideration our positions entitle us to.

Take a little retrospect of the past. Twenty years ago I came up here to the first meeting of the Board of Agriculture. There were but few of us; and I remember that out in the street were some men with fine cattle, one of them a bull that had been imported. He was surrounded by a wondering crowd, and talked of as a great curiosity. After a few years some fine sheep were brought up for examination. Then our State fairs came into operation, and then the county fairs, and now we find a network of organizations and interests extending through the whole agricultural world. And to-day we feel as though we were going to accomplish the crowning glory of all our past efforts. This sort of action must be pushed on.

I do not propose to talk about soils or their different products, but if there is an interest that belongs to the agriculturalists of Ohio that needs fostering, which we claim as our own, let us unite in placing it in the foreground and standing by it to the end. If this college that is engrossing so much attention here and elsewhere, is to be an institution for the benefit of the farmers and mechanics of Ohio, let us look well to it that it goes not out from under our hands. If we don't look after it ourselves, nobody will look after it for us. Other educational interests will look after it, and it may be right, but if it is our college we must look after it. If it be necessary the farmers of Ohio ought to put their hands in their pockets to the tune of four hundred thousand dollars to establish that institution as it should be established. If we can not raise that money in any other way, we can go to these farmers and these mechanics and induce them to take a scholarship. The project has gone back so far. It was a want of concert of action that the thing has been left until this late day. If that agricultural college of Ohio was intended to promote the agricultural interests, and increase the wealth of Ohio by increasing the productions, and by giving us a system of education that would give us a higher skill, let us take hold of it and make it our institution by our action as well as by name.

Mr. Donnelly. What is agriculture? What is proper education? The dignity of labor is based upon the education of those engaged in it.

What we are to seek for is to elevate not only one class but all classes of people. If there is anything we want, as laboring people, it is education. As this question runs into the college question, I hope delegates will see that they come in at the top and not at the bottom. If you attach such colleges to others, and send your sons there as tillers of the soil, those who come as doctors and lawyers will think they have a higher position than the aims of your sons.

Mr. Harris. As to what is proper education, I think it is what should educate the farmer to his calling, and not educate him out of it. I have no objection to the highest degree of education for those who desire such education, but if we establish an institution to bestow a classical education on farmers' boys, we fail in the great object for which that education was made. If we can make farmers' boys intelligent agriculturists, we shall accomplish the desired end. We wish to get up an *esprit de corps*, something that will educate the character, that will bring the greatest success in farm operations. It is not to elevate the farmers' boys that we desire an agricultural college, but to put them in a position where they can accomplish the most good for themselves. When we can do this we will have an agricultural college that will accomplish the great ends we desire. If we come short of this we shall fail in securing those objects. If we provide the means for the farmer's sons of Ohio that will make them intelligent and enable them to understand the theory and practice of agriculture, and those branches of commerce and mechanical arts that belong to agriculture, we shall have a truly agricultural college.

Mr. Stevens: It is a remark of General Washington, that there is no calling in life so useful, profitable and honorable as that of agriculture. At the same time public opinion in America, at least for the last few years, has given the lie to this expression.

Why is it? It is not a mere opinion—it is simply the fact that the education of this portion of the community has been shamefully neglected. Gentlemen seek distinction, eminence; they embark in the professions; they must learn or graduate at some of the colleges; they must read law, medicine, or divinity. Now if we wish to dignify labor, how can we do it better than to educate the laboring classes? When this is once done, then the calling or pursuit of agriculture becomes an object worthy of the aspiration of our most promising young men. There is no pursuit in any nation that so much demands the best portion of our people. In Europe it receives the best portion of the people of the country. Their Parliament is full of the best men who represent agriculture, and when our people become thoroughly educated, and our farming and mechanical portion of the community becomes thoroughly educated, there is no reason why we should not command that respect which our numbers seem to demand.

It strikes me that when we once accomplish this we need not then send our lobbies to Congress; we need not ask our members of Congress to protect us in wool-growing, or to protect us in any other branch. Whenever our Congressmen appreciate the fact that the masses of their constituents are farmers and as intelligent as other portions of their constituents, they will look after the interests of agriculture. And I apprehend that until then we must take the blame upon ourselves. Our own ignorance and neglect of our true interests is the cause of our wants being so shamefully neglected by the members of Congress.

Mr. Joy: It is an old and true saying that knowledge is power, and there is certainly no one thing our people so much want as more thorough and general education. I cannot wholly agree with the remarks of my friend, Col. Harris, that the present system of education in our literary institutions are wholly incompatible with the interests of our farmers. The impression is gaining ground, and doing us harm, that our farmer boys do not need the same thorough course that our boys need for the other pursuits. The study of many sciences are not needed for the law, but it gives him expansion of mind, power to comprehend and act. These qualifications are as necessary for an intelligent farmer as for any other profession in life. I believe we should devote the same attention to the education of our children that are to follow us on our farms. When this is done we will have no need of sending delegations to Congress to represent our interests there. We may be able to make our Congressmen feel that the voters that elect them come from the ranks of agriculture, and they will readily perceive when they neglect their wants. I think we cannot devote too much attention to the education of our children. There is a prevailing sentiment in the country doing us much harm. The Presidents of our institutions almost invariably, when delivering their views to their graduates, go on the presumption that young men will not remain in college four or six years; they point out spheres of usefulness, but neglect to say that these honors are within his reach if he enters the sphere of agriculture, as much so as in other pursuits. I believe we shall have agricultural knowledge before many years that will revolutionize the whole order of things. That they will see they must conform to the agricultural interest of the country, and impress upon their pupils that agriculture is the noblest and best pursuit of man, I expect this to be one of the results of the agricultural college. We cannot expect to educate the one-fourth of the sons and daughters who are to be educated.

Mr. Harris. The gentleman misapprehends my idea in regard to the amount of education necessary for farmers' boys. It is true, arithmetic, philosophy, etc., are just as necessary to farmers' boys as to others. I spoke of the specialties of the farmer's education, that they should be of a practical nature, and that an agricultural college must not necessarily be a classical institution to accomplish its mission.

Mr. Parish. The question propounded for consideration being a very general one, the answer to the question must be of a general nature also· It has been said that knowledge is power. We all assent to that. There is another adage, "Wealth is power." We have had very plain demonstration of that fact in our recent civil war. The people of our own nation and the nations abroad have been astonished at the immense resources of the Government of the United States. Now we want knowledge. We want wealth as a nation, as a State. The cultivation of the earth is the grand source of State and national wealth, and whatever increases the amount of the agricultural products of a State or nation, certainly adds to the amount of wealth, and increases the power of a State or nation. Then we may say in general terms that whatever increases the skill in the cultivation of the earth is a necessity of agriculture. To educate farmers is one object to be secured to insure an increased amount of products of the land. We want industry and we want skill. There is another general want. We want economy. We want to have the earth of the farm used in the production of such articles and such articles only as will add to the wealth of the State or the wealth of the nation; and whatever amount of land of a State or nation used to grow those articles that either produce nothing or add nothing to the general resources but detract from it, all such uses of the soil should be abandoned. To illustrate: In the last volume of the Agricultural Report, we find a very large number of acres of land appropriated to the growing of tobacco. In my judgment that adds nothing whatever to the wealth of the nation or State. There might be other articles mentioned also. I only name this as an illustration. Let the soil be used then for the growing of those articles that add to the aggregate amount of products that are useful and contribute to increase the wealth of the State or nation.

On motion of Mr. Harris, the Conventon adjourned until to-morrow morning.

THURSDAY MORNING.

The committee appointed to investigate and report upon the report of the Commission appointed by the Governor of the State, on the subject of an agricultural college, submitted the following:

Mr. President:

Your committee, to whom was referred the resolution concerning the establishment of an agricultural college, etc., have had the subject under consideration, and now beg leave to report.

We regret that the shortness of time allowed, did not enable us to give the subject that degree of consideration and investigation which the importance of the subject demands, and that we are forced under the circumstances to submit only a few suggestions.

Every age in the history of man has stamped upon at least one peculiar characteristic that makes it notorious. From the age of the Patriarchs hitherto, we had, amongst others, the age of *nations emigrating;* the age of *knight errantry* and crusades; the *middle or dark age;* the *age of wars;* the age of *reformation;* the age of *inquisition and persecution;* the age of *science*, of *poetry*, of *inventions* and *discoveries*; the age of *steam* and *telegraphs*, and many more. Our age has also its peculiar characteristic, and may well be called "*the age of the reason why.*" In the arts and sciences, mechanism, commerce, agriculture, politics, yea, even in religion, you must tell the reason why, and give proof of the faith that is within you. While this is true as to this age, it has also a great mission resting upon it as a binding obligation; one that we owe to God, to ourselves, and to posterity. Let us see to it, that we may well discharge the trust, and ask ourselves, and be able to answer the question, whether we are equal to the task. This great mission is nothing less than *to elevate agriculture into a science.*

In proof of this, our attention is directed to the great efforts that are now making in every civilized nation on earth, to promote improvements in agriculture and the mechanic arts everywhere; laws passed and grants and appropriations made to that end; the interest thereto awakening amongst the masses of the people, and the helping hand of men of letters, of science, of philosophy and philanthrophy. This grant of land by Congress runs in this channel, and the subject is now in the trust of the people of this State. How shall we use this trust so that the greatest good shall result therefrom to the greatest number? Unless Congress will extend the time for the people of this State to establish such college as contemplated in the act, the time is very short in which our law-makers can act in order to comply with the conditions of the grant. This body at its last convention was almost unanimous in its decision that there should be established but one, and that one an independent college, in the spirit and letter of the grant; that a large farm should be attached thereto for practical and experimental purposes in grains, grasses, stock, machinery, etc., etc. Since our last convention, and in conformity with an act passed by our last General Assembly, our late Governor appointed a commission to investigate and report upon the subject.

Through the kindness of Governor Anderson, your committee have had access to that report,* and have carefully examined the same. That commission, in their wisdom, have seen proper to recommend a division of the fund, and that one-half thereof shall be given and appropriated to the Miami University, for reason therein assigned; and that the other half be reserved for future time, and to be hereafter appropriated, in like manner, for a college in the northern part of the State. This report being in direct opposition to the action of this body at its last convention, and conscious of the vast importance of the subject, your committee is at a loss and for want of time cannot now go into detail on this subject.

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* See Report of the Commission on page 92.

One great fact, however, should not be lost sight of. An opinion seems to prevail that agricultural colleges are erected to educate the sons of farmers into practical agriculturists, and that every tiller of the soil should be an educated scientific farmer and economist. However fine and beautiful this idea may seem in theory, it is false in practice and daily experience. Our age and country knows of no classes of men. The best of our leading minds in the different departments of life come from farms, from workshops, from the busy scenes of life everywhere; and it is not true that the farmers' sons, as such, have been neglected in their education. All our schools, high and low, are open for them as well as for everybody else.

And here is another error. Very many people expect too much from such colleges, and look forward to the time when every man who enters upon the life of a farmer, should first have gone through the several branches taught at such an institution. A moment's reflection will show the utter fallacy of such a thought. Amongst the millions of our people, the number that can, at best, be educatod at such schools, are comparatively but very few. Very few, indeed. If among the hundreds and thousands of students, men shall rise in our State, who may discover hidden laws of nature, the promulgation of which will tend to extract from mother earth the greatest profit with the least labor and expense, or which may enable man to live the more happy by knowing how to comply with nature's laws, you will have accomplished all that should be expected by the most sanguine. "To plow and to sow, to reap and to mow," the young farmer must learn at home; and very few, indeed, will be those who send their sons to those colleges for that purpose.

Now in view of all this, together with the great importance of this subject and the diversity of opinion as to the appropriation of this fund, &c., your committee feel and deem it their duty, to abstain from any recommendation on the subject, and refer the same back to this Honorable Body for its further action.

Allow us, in conclusion, to say that we can see no good reason why we should now depart from the action of this body at its last session. Let us be careful that we may not step out with the left foot foremost, and give the wrong direction to march of time. Attach this grant to any college established and endowed for other purposes, you strip it of its independence, and it will fail in its utility. It is an experiment at best. As such let it be independent, clear of dead weights. Let it live upon its own merits or die amidst its worshipers.

Respectfully submitted,

W. LANG,
JOHN H. BRANCH.

Mr. Harris. I do not arise to oppose the report, but there are certain assumptions that I am sure this Convention do not wish to indorse without some explanation. There are certain "spread eagle" things in the report which have been repudiated by the majority of agricultural men. Perhaps they did not mean exactly what the words imply. If they do not I would be glad to hear an explanation. The points have not been discussed in this Convention, but they have been in previous Conventions.

Mr. Lang. I would thank the gentleman to point out the matters he refers to.

Mr. Harris. I would not be able to take up the report and compare it with previous discussions and decisions without time to re-read the report. I simply give my impressions from listening to the report as compared with former expressions of opinion by the Board.

Mr. Branch. Give us the "spread eagle" part.

Mr. Green. I understand that the tendency of the report is to indorse the action of this roving commission. (Mr. Lang. No, sir.) Well it reads a little on both sides.

Mr. Lang. The gentleman is entirely mistaken as to the meaning of the language employed.

Mr. McClung. I understand that the report indorses the action of this body for one college, and that the tendency was in that direction all the way through. If it is objectionable, let us have the proposition specified.

Mr. Green. That would be well if we had the time before us to examine it at length. From a mere casual reading we could not specify the points to which we object. The report is before us for examination, and gentlemen can have it read again, and as it is read we can stop the reader and where it is objectionable say so; and if it indorses the action of the Convention heretofore we will know it. This is the most important matter we have before us, and we come here for the purpose of looking after that matter which involves the land grant.

Mr. Lang. I will state the sum and substance of the report of the commission that is about to report to the Legislature. It is signed by but two of the committee, Mr. Greenwood did not sign the report, because, perhaps, he lives near the Hamilton county institution.

They recommend that one-half the fund received from the sale of land scrip be appropriated to the Miami University, and that the other half of the proceeds of the sale of scrip be reserved for the future action of a future Legislature, out of which they may establish an agricultural college in the northern part of the State. The Convention heard the speech of our friend Gardner, yesterday. He investigated the matter, visited the colleges, and the rest of the committee took his word for what he saw, and signed the report.

Mr. Anderson, of Butler. I think the gentleman is in part mistaken. The rest of the committee were present at Oxford, Messrs. Thatcher, Taylor, of Columbus, Greenwood, of Cincinnati, and Gardner—all were at Oxford, and examined the institution for themselves.

Mr. Greer said Mr. Thatcher did not entirely concur in the report.

Mr. Lang. All I have to state is that the report is adverse to the feelings of this Convention. Everybody can see that at the last Convention it was the opinion of all that the appropriation should be stripped of every kind of dead weight, to make it an independent institution, to have the spirit and letter of the grant of Congress carried out. I so conceived the action of this Convention, and the report took me by surprise; and friend Gardner told me yesterday that he had at first been in favor of an independent institution, but had come to the conclusion that it had better be divided. In the absence of my friend Parish, Mr. Branch and myself consulted together, and agreed on what is here written. I regret that my friend from Hamilton thinks this report carries water on both shoulders.

Mr. Lang then read those portions of the report which refer to the contemplated character of the agricultural college.

Mr. Parish. As I am one of that committee, and may be held responsible for the report, a few words of explanation may be required. If I had been permitted to examine the draft before the final action of the committee, I should have made several suggestions which I think would have improved it very much. Still, I do not see anything substantial in the report from which I should dissent, unless it should be that part which the chairman claims to be in conflict with the report of the commission. I will say, in explanation of the reason given that I did not sign the report, that I had left the city. I did not give out to any one that I expected to leave the city; on the contrary, I said that I was sent here to attend the Convention, and it was my intention to remain until the close.

I do not rightly understand what is meant by the recommendation of the majority of the committee, in saying that this institution should be an independent one. Perhaps that language would not be understood alike by all who heard it. Is it to be understood that the majority of the committee recommends that agriculture, horticulture, science, and the mechanic arts, alone should be taught in this college? or are we to understand that although other branches, classical and literary of all kinds, should be taught in the same college, to be erected independent of other existing institutions? I have no objection—although I represent the extreme north—to the adoption of the Miami University, under the circumstances which I understand to have taken place. I understand that the agricultural interests of Ohio are to have complete control of the whole institution of Miami University, and in addition to that, have a donation of the existing permanent fund, from which the annual sum of six thousand dollars is realized, to be appropriated to the compensation of instructors. It is proposed the agricultural college shall have that fund, all the buildings, and one hundred acres of land. I think it would be a good plan to adopt the proposition of the Miami University, and put the college into operation at once. The urgent reason for this is that the time limited by act of Congress in which the State must do something or it will revert, is very near at hand, and we will loose the benefit of this grant. I rather dissent from that part of the report of the committee. I present no minority report, because I have had no time to prepare one; and I do not know that I should if I had time. I do not know but I would differ from the report of the commission, reserving half of the fund for establishing another college in the northern part of the State. I do not at this time favor that idea. While I say this, I confess that I have not given to the subject that attention that I now wish I had done. I favor the establishment of a college for the farmers; as to the best details, I have not made up my mind. I like the idea of reserving half the proceeds of the grant of Congress, to be used hereafter in accordance with the light that shall be thrown upon the subject by experience, after practical test of this first college. It may be that this fund reserved might be used to establish primary or secondary institutions, or proprietary institutions in the several counties of the State.

It is said that, after all, this college is to extend its benefits to comparatively few. I hope this prophesy is not well grounded. I hope all the farmers of this great State will receive greater or less benefit from this institution and grant of funds. I hope it will be so arranged eventually as to extend its benefits to every farmer's son within the limits of the State, either directly or indirectly. I would, therefore, cut off that part of the report of the commission that proposes to reserve part of the fund for another institution.

Mr. Green. This report is the most singular document that I have had the pleasure of examining for many years. After a very fine dissertation on the capability of farmers' sons, and the impossibility of educating more than a portion of them, they wind up thus: "Now in view of all this, together with the great importance of this subject, and the diversity of opinions as to the appropriation of this fund, your committee feel it to be their duty to abstain from any recommendation on the subject." That is a nice conclusion, "abstain from any recommendation," But they immediately add, "Allow us in conclusion to say, that we cannot see any good reason why we should depart from the action of this body last session." They arrive at no conclusion, but immediately afterward arrive at the conclusion that we should adhere to the action of this body.

As to Mr. Greenwood: I know Judge Lang does not understand Mr. Greenwood. He is like the Irishman's bull, he goes in a gang by himself. His mind is broad and comprehensive; he has a brain that acts for itself.

There appears to be misapprehension in regard to Miami University. It might be known that I have never been in favor of taking the University. That is our property; it belongs to the State of Ohio. Its ground was given for educational institutions. As to giving it for any other purposes—for an agricultural and mechanical institution—we have the right to take our own property and change it in any direction. As I understand from Mr. Gardner, they propose to surrender that property, the faculty resigning. The Legislature has the right to do what they please with it for educational purposes. Why do we stand here caviling about this thing, when in a few short months the grant will revert back? We may as well stand while the house is burning, and contend whether we shall put the fire out by buckets or send for the engine. It has been said by Mr. Lang, it is but an experiment at best. Then why not recommend the acceptance of Miami University? It is true it is a little one-sided, but it would not take long to go there from the most remote part of the State. While we are quarreling it will be like the dog with his meat—while grabbing at the shadow we will lose the substance.

Judge Jones. The Congress of the United States has granted to the State of Ohio six hundred and thirty thousand acres of land for the "education of the industrial classes." By the terms of this grant it is made the duty of the State to provide one or more colleges, at which "the leading object shall be, without excluding other classical and scientific studies, to teach such branches of learning as are related to agriculture and the mechanic arts." This grant has been accepted by the Legislature, and the State has become bound to provide and maintain the college in accordance with the spirit of the act.

A commission appointed by the Governor, and authorized to receive propositions for the establishment of a college, has made a report, and a committee appointed by this body having had that report under consideration, has reported to us, advising that the plan of the commission ought not to be approved by this convention.

The report of the commission having been transmitted to the Legislature with the favorable indorsement of the Governor, it would seem not inappropriate for the representatives of the industrial classes here assembled, to express their opinions as to the propriety of its adoption by the General Assembly.

The colleges that are to be provided under the act of Congress, are intended to accomplish three objects:

1st. To give instruction in such branches of learning as are related to agriculture and the mechanic arts.

2d. Other scientific and classical studies not being excluded, to promote "the *liberal* education of the industrial classes;" and,

3d. A farm is to be provided at the college, that experiments may be made for the benefit of the State at large, as well as the students at the institution.

Let us now inquire whether the plan reported by the commission is adapted for the accomplishment of these objects.

To make the experiments required for the scientific instruction provided for, a large expenditure of money must be made, and it is obvious, that if we have but one college, the amount required for this purpose will be only one-half the sum that must be expended if two institutions are to be established. The same is true as to the expense of the farm, and the experiments to be conducted upon it; and it is also true that, as to all the other instructions that are to be provided, five hundred students can be taught much cheaper at one institution than at two. Besides, the savings in the particulars mentioned, we save nearly one-half in the compensation of officers and professors.

Now, the commission reports in favor of the establishment of a college at Oxford, in Butler county, and that one-half the income derived from the Congressional grant shall be appropriated for its support; the other half to be reserved for the purpose of establishing another college, or to be disposed of as the Legislature may hereafter direct. Of course, if this plan is adopted, it will be with a view to the establishment of another college in the northern part of the State.

I object to this plan. First of all, because the income arising from the Congressional grant is wholly inadequate for the support of two institutions of the character required by the act. The report of the commission, I think, provides for the establishment of ten professorships. At $2,000 a year each, this alone will absorb $20,000; while we cannot hope that our entire fund, deducting the ten per cent. authorized to procure the farm for experiments, will exceed that sum.

I also object to the Oxford location, that it is at the extreme south-west corner of the State, within, perhaps, three or four miles of the Indiana line, and twenty-five or thirty of the Kentucky line. Should another college, at some future day, be established, as seems to be contemplated, in the opposite, in the north-east corner of the State, the students, and the people of the State at large, would be required to travel further to reach one of these institutions, than a single one located in one of the central counties.

It is with great reluctance, Sir, that I take part in this discussion, in opposition to the report of this excellent Commission. The Chairman, who is understood to have prepared this report, was for many years associated with us as a member of the State Board of Agriculture, and I think I but express the common judgment of all his old associates in the Board, when I say that no member was more generally esteemed. His ability, public spirit and zeal in the work—his high moral and social qualities, made him the favorite of all. The character of all the gentlemen of the Commission concurring in this report is such, that we are not permitted to doubt its entire good faith; and for myself, I am free to confess that the report of such a Commission has had such an influence upon my judgment as to induce a careful reconsideration of my opinions upon the entire subject. But after all, with poor ability, I know, but with as much thought bestowed upon the subject as the members of this Commission, I am still firm in the conviction that the objects contemplated by Congress in making the grant cannot only be better accomplished by establishing but one College, but that, in fact, the great purpose of the donation will entirely fail, if we establish more than one.

I have considered as well as I was able, all the reasons assigned by the Commissioners in support of their recommendations. They urge that the act of Congress requires the establishment of a College by July 1867; that Oxford having an endowment of about $6,000 per annum, will, with an equal amount appropriated by the Legislature, enable us at once to put our institution in operation; and that as the land scrip is not selling, we can do this in no other way.

To this I reply: That it is not to be expected that the Legislature will make the appropriation; it is indeed, in my opinion, out of the question; that, without this appropriation, the College could not be carried on at Oxford, as seems to be admitted by the report. The Miami University, with the $6,000 annual income, is unable to maintain itself; if it were not so, we should not find the trustees proposing this arrangement. The buildings are so poor that they cannot, in their present condition, be longer occupied, and the University has ony $15,000 with which to replace them. It is said, too, that by converting Miami University into an Agricultural College, we are not starting an additional institution to compete with other colleges of the State, in whose welfare and prosperity we are all deeply interested. But it will be observed that, while the report proposes to start without creating an additional institution, it does contemplate that another shall, in the future, be put in operation. Besides, arrange the matter as we may, whether we establish new institutions or convert existing ones, so far as our College shall attract students that would otherwise attend the other colleges, we shall be in competition with them. But I apprehend that our institution will be patronized chiefly by young men, the sons of farmers and mechanics, who would not be likely, under any circumstances, to patronize the other colleges.

Another argument in favor of the report is, that two institutions would induce a general rivalry that would be productive of good results. It would seem to be a sufficient answer to this argument, to observe that there will be similar institutions in all the adjoining States, inducing all the rivalry and the beneficial results, that could be expected from an additional college in our own State.

In a nut shell, the case before us seems to be this: We have a grant of land from which we cannot expect an annual income of much more than $20,000, and we are required to provide one or more "colleges," at which instruction in the sciences pertaining to agriculture and the mechanic arts must be furnished, and the means for the *liberal* education of the industrial classes, together with an experimental farm. Is there any intelligent man who will pretend that two institutions of this kind can be supported with an annual endowment of $20,000? If we are to have but one College, as seems to me too clear a proposition for argument, will any fair minded person claim that it should be located at Oxford?

In answer to the suggestion that we cannot convert our scrip into money to start the College, unless we accept the Oxford proposition, I reply, that we may as well, in any event, not to undertake to start until we have the income; without that, we cannot, as I have shown, maintain it at Oxford. The act of Congress, it is true, requires that we provide a College by July, 1867, but the Government is interested in keeping up the price of the public lands, and will not compel the States to force the sale of this scrip. Many of the States are asking for an extension of time, and I was informed by Senater Sherman, this morning, that he had no doubt but the Government would either extend the time, or not insist upon the forfeiture.

It seems to me, therefore, upon are view of the whole case, that this Convention should adhere to the position assumed and the declaration made last year in favor of one institution, with an endowment adequate for the accomplishment of the purposes contemplated by Congress in making the grant—uniting the *liberal* with the practical education of the industrial classes.

The importance to the agricultural and mechanical interests of the country of providing the means for this liberal culture, cannot be overestimated. It is a matter of fact, disguise it as we may, that farmers and mechanics are not as liberally educated as men in some of the other vocations of life.

In answer to the question so often asked, why it is necessary that these classes should be liberally educated? I ask, why is it necessary that the lawyers, the preachers, or the statesmen, should be so educated? It is not so much that their knowledge of Greek and Latin can be practically applied in their calling, as that the mental culture imparted improves the intellect, and increases their influence among men. By such studies, with the higher branches of mathematics and natural and moral philosophy, the intellect is improved and understanding expanded. To hear some gentlemen talk, one would suppose that colleges were not necessary for farmers at all! Why, Sir, in this great country of ours, more exclusively an agricultural country than any of the great nations of the earth, if the liberal culture of the farmer is not to be encouraged, why should such culture be thought necessary for any other class? We know that in the Constitutions of the old States it is provided that *colleges*, as well as schools, shall be encouraged. Look to your legislative assemblies and see what calling furnishes the leading and influential members. Not even for the committees on Agriculture, it would seem, can practical farmers be found in our National Legislatures, nor always in the State Assemblies. Why is this? Is it because the men engaged in farming are not equal in intellect to lawyers, doctors, and merchants? I answer no; but the reason is, that with the farmer the liberal culture has been neglected.

Until the farmer and mechanic shall be educated and their minds cultivated, so as to be able to grasp the most abstruse question in science, philosophy or politics, the great interests they represent will never be properly cared for in the legislative assemblage, nor will the industrial classes have the influence in the country demanded by the importance of their vocation.

I do not mean that this liberal culture can be imparted to all farmers and mechanics; this is not practicable with any class or calling. Our capabilities and tastes are not all alike. Among the sons of professional men, and men of large fortunes, though so many have the opportunity, but few, comparitively, become distinguished scholars. And so it will be with the sons of farmers and mechanics; but the opportunities being within the reach of all, all departments of learning and science will have their representations in these vocations, as well as in what are called the learned professions. And it is a great mistake to assume that the system that produces these results is exclusive and aristocratic. The benefits are not confined to the few who acquire this high culture, but are by them, as we all know, diffused among all with whom they are associated. They become teachers in the local institutions of learning; they make scientific experiments in their neighborhoods; they enlighten their neighbors through the press, and they advocate the interests of their class in the public assemblies.

And, sir, I stand here to-day, in this Convention of the Deputies of the Agricultural and Mechanical interests of Ohio, to plead for the establishment of an institution of learning that will be *adequate* to confer upon these interests such benefits as those—an institution that will not only provide for our sons the education that will qualify them for the special duties of their calling, but shall, also, improve and expand the intellect, elevate their morals and refine their tastes. These latter objects, sir, if not of the same primary importance as the practical education *(so-called)*, are yet in harmony with the manifest design of the Creator of the Universe, who so clothes the "lillies of the field in colors of matchless beauty that even Solomon, in all his glory, was not arrayed like one of them." It is not necessary here, I trust, to enlarge upon the benefits resulting to community from such culture. How the mind that understands, and, therefore, appreciates the wonders and beauties of the material world—the great moral law of the Almighty, and to some extent the curious characters and the languages employed in proclaiming this law to mankind, and transmitting it to us—the manifold blessings resulting to the world from the observance of that law, will ever be the advocate of social order, sobriety, charity and benevolence.

Am I again to be met with the objection that such mental culture will lead our sons into the "learned professions?" Will cause them to regard with contempt the occupation of the farmer and mechanic? Why, sir, the plan required by the act of Congress, and which we are now advocating, is precisely the thing that will put an end to the foolish ideas prevailing—that the learned must go to the professions or engage in commerce, and the ignorant only be engaged in agriculture and the mechanic arts. At this College we propose to *unite* the arts of industry with the highest mental culture, teaching that both are equally necessary, equally honorable and equally worthy the attention of the greatest intellects.

And now, in conclusion, I appeal to the members of this Convention that their judgment upon this great question be influenced by no local prejudice. I have endeavored to show that one College, located in any of the central counties, would be more convenient ot access to the people of the State at large, than two would be, if placed upon its extreme boundaries. As stated in the report of the Commissioners, we are to hope that lectures, with apt illustrations, not found at the other institutions, will attract, at convenient seasons, students from other colleges, and inquiring farmers and mechanics of the State. Indeed, I have no doubt but that, if we have a suitable farm for experiments, our operations and lectures in connection with these experiments, will make such visits numerous and frequent. How important it is, therefore, that the location shall be convenient of access for the State at large.

If we secure a suitable location, with a proper organization and an *adequate endowment*, our institution will live and prosper as long as our noble State shall exist. In the cultivation, elevation and refinement of the "industrial classes," whose toil supports the republic, how vast and extensive will be its benefits and blessings to us and our posterity for countless generations!

NOTE.—At the time these remarks were submitted, I had not read the report of the Commissioners. It has since been printed, and I have been greatly surprised to learn that Miami University, by the proposition submitted, offers only to make provision for the special instruction required by the act of Congress *in that institution*.

From the manner in which the proposition was stated in the Convention, I had the impression that the present organization at Oxford was to be dissolved, all the property surrendered to the State, and a new institution established. The proposition begins: "The Miami University, the Legislature of Ohio assenting thereto, makes the following propositions to the State of Ohio *for one-half the Agricultural fund:*

"1. *Miami University will furnish*, for the use of the Agricultural College, all necessary buildings, and keep the same in repair," &c.

"2. *Miami University* will at once establish an Agricultural College," &c.

"4. Students of the Agricultural College shall be entitled to the benefit of the library apparatus and professorships supported by the present funds of *the University*."

The legal effect of all this is, that Miami University is to continue, and its officers are, in all respects, to control and manage the same, as enlarged by the Congressional endowment. Students may now and will be instructed there as heretofore, and may graduate without any instruction in the agricultural course. We shall have precisely the distinction between the classical, or college course proper, and the course in the studies relating to agriculture and the mechanic arts so generally opposed by the public. All degrees in both departments will be conferred by "Miami University." It is true the present Board of Trustees propose to resign; but they do not, by this, at all change the legal effect of the proposition as already stated.

Here is their offer to resign; "The undersigned members of the Board of Trustees of Miami University, in view of the proposition to locate, *in connection with that University*, by the State of Ohio, an Agricultural College, hereby agree that if such location is made, we will resign our positions as such Trustees, in order to enable the State to reorganize the Board of Trustees in a way suited to its additional endowment."

I do not know know what the friends of the Oxford location have said in urging upon the Legislature the acceptance of their proposition, but it is very clear that by their written offer they have been very careful to preserve their old organization, with all its rights and privileges. As they are all honorable gentlemen, I presume they have used no efforts to deceive in this regard.

The Trustees are to resign, but it is to enable the State to "reorganize the Board," that is, the same Board, with the same powers and under the law establishing Miami University. "In a way suited to its additional endowment." The additional endowment requires special instruction in agriculture, &c., and it would therefore seem proper that some of the Trustees should be selected who are qualified to look after this new feature. No other construction can be given to what is here proposed.

M. Harris. I do not arise to take issue with the gentleman from Delaware: I think he or I have mistaken the tenor of the report of the Committee. I do not understand that the report contemplates a division ot the fund. I have steadily opposed the division of the fund; never committed myself in favor of two or more Agricultural Colleges. I am not certain, but it may be wise, under certain circumstances, to establish two colleges, but I have never said so, and I do not understand that, by the re ommendation of this commission, they propose any such thing. They disclaim any recommendation of this kind. They say we will appropriate half the fund and let the other half await the logic of time and events without making any recommendation. There is an obscure intimation that possibly it may be best to establish another in the northern part of the State, but no such recommendation is contained in the report.

If this is true, all the argument aimed at that part of the report is powder wasted. The report of the committee says it is a great fallacy to suppose that every tiller of the soil must be educated to understand agricultural economy, etc. If there is any fallacy, it is a great fallacy to say that all our sons should be educated up to the same capacity. We are not all of the same capacity. One farmer's son may be a good ploughman, another a good mower, and another a good merchant. There is a limit in capacity. I do not say but we should educate every farmer's boy up to his capacity. Our common schools are better adapted to the education of children in grammar and arithmetic; if we wish to learn mathematics and classics, there is no better institution than our colleges. If this were all there is no need of agricultural colleges at all. It is only for those who are to be the bright and shining lights of the world. If this College is to get up an aristocracy in agriculture, I would rather have this project fail. We have enough of this in the professions. It is, they say, that they may seek out the hidden lights that govern production. Here is one of those jack o' lanterns.

Like the man who would seek for money at the foot of the rainbow, or the man who would go out on the prairie after fire, because he sees the morning in the distance. We want to learn the common sense of agriculture, and we want it as wide as the profession of agriculture.

I am charged with being disrespectful in using the term "spread eagle." I certainly did not intend to be disrespectful. It is my misfortune to use the language to express the idea I wished to convey; if it is disrespectful, I beg pardon. Judge Jones says that wise men are least presuming. Judge Jones is a wise man, and I am free to say that he is presumptuous, and I think his position does not hold true in his own case.

If the endowment of Miami University—and I do not advocate the cause of that University—if the land and buildings, such as they are, are not sufficient to run the institution with half of the congressional grant, how are we to run a new institution without the ground or buildings? On that the recommendation of the Commission was judicious; and if we wish to accept any proposition that looks towards putting the institution in operation next year, I see no other plan but to accept the proposition of Miami University. I do not speak in favor or against it.

Mr. Lang. I have been very much pleased with the broad and liberal views taken by Judge Jones. It repeats the scenes of last year. It is the same argument, and in the same spirit in which the argument was handled. I am glad he cuts loose from all sectionalism. I want this agricultural college to be an institution, and I don't care where you put it, so that it be in the most suitable place, even at the extreme south-west corner of the State. I ask nothing for my region of country, but I do ask for my own children and neighbors, that whatever influence the agricultural convention can exert upon the Legislature in behalf of this school, shall be of such nature as not to make us blush when we look back upon the road we have come. I am not one of those who can be scared because the time is short. I may state, that if the Legislature of Ohio do not see proper to provide a plan upon which they will make this appropriation this winter or next winter, Congress will not enforce their condition of forfeit. There is but a single State in the Union that has taken steps in establishing a college, and that is New York.

Mr. Green. Iowa has one building now.

Mr. Lang. In New York there was cause for it, by men appropriating half a million of dollars. The State, to avoid plunging into the treasury of the State, took this prompt action. The rest of the States have acted cautiously in the matter. Do not let us be hasty; there is no necessity for hurrying. This committee has tried to be consistent; and I do not think there is any great inconsistency in the phraseology or conclusion of our report: "we beg leave to abstain from recommending any action of this convention in view of the acts set forth." I would like to know whether friend Harris is lashing the commission or the committee. Our report is made in conformity with the resolution proposed by Mr. Harris in this convention a year ago. I read from the Agricultural Report of last year, page 52, "That in the opinion of this Convention, the object sought to be obtained by the grant of land from the General Government to the State of Ohio, will be better accomplished by one distinct college; and that in view thereof, this Convention respectfully recommend to the General Assembly that they take such steps in framing a law as will accomplish that end." These views are in accordance with the views of Gov. Brough, and the Governor's views were in favor of one distinct college.

This committee saw no reason why we should depart from the action of this convention last year. Our opinion is, that the action of this convention last year should not be stultified by action in a contrary direction now. And so we are now not in favor of dividing this fund, making two bites of the cherry, and thus cripple the appropriation of Congress. Better, far better, that we allow the fund to be forfeited than that we should build a nuisance upon the State of Ohio, that we take up rotten, decaying institutions and breathe artificial life in them, and then let them die out again. Better that we grasp the subject with liberal views due to its importance.

Mr. Earl. I have listened with pleasure to the discussion of the question which involves so much importance to the people of Ohio. I always prefer to learn, by listening to the discussion of a question by those who study them well, than intrude any opinions of mine. I started out with the idea that the commission, which was appointed by the Governor last year to investigate this matter and report to him, acted with perfect candor and honesty. But because they have done that, it does not logically follow that they have arrived at the best conclusion; that they have made a recommendation that will commend itself to the judgment of this convention, or which will inure most truly to the interests of the agricultural cause of this great State of Ohio. The argument which they present for receiving as a portion of the collegiate fund, this worn-out institution of Miami College, has no charms for me. It may be advisable to adopt such thing, but I would rather see a new institution arise with vigor and power, than take any dilapidated and death-stricken carcass into our arms and endeavor to regenerate it. And if this college, which it is proposed to incorporate into the agricultural institution of the State, were located in a better or more central location, one more easily accessible to the whole people of the State, I might consider it different. It may be said that the son of a farmer near Cleveland could easily go to Oxford. I admit he may go there easily and quickly; but can he go there as cheaply as if the institution were more centrally located? I have no axe to grind, for I come from a portion of the State as near the corner as Oxford. I would like to have the institution in a portion of the State where the advantages will be equal to the sons of farmers of Ohio.

It is true the college will not receive more than a small per centage of the sons of farmers, but those who do go there will go back to carry with them an influence which will spread and be felt in the region in which they live; and thus this college will have an important effect upon the whole population. Take the son of a farmer in any community, and educate and cultivate his mind, qualify him to disseminate his thoughts among those with whom he moves, and the spirit within him will find a place in the minds of others, and their desire for knowledge will be extended, and the result will be a general stimulation for the purpose of securing the knowledge so advantageous to their friend. The same principle applies to the intellectual powers of mechanics. We want to teach our mechanics not merely how to handle a plane and chisel, but to understand the principle and construction of the machine he uses. We will not be able to so instruct all mechanics that they will be able to manufacture a machine equal to the one horse chaise that will hold together until the material of which it is composed decays, but we may make them intelligent instead of mere automatons.

I believe it would be impolitic to divide this fund. There is no more of it than necessary for the accomplishment of the purpose intended if kept in one body. I trust this convention will express its disapproval of any recommendation of the commission appointed by the Governor, which will tend to the division of this fund, and disapprove of any location which will not be within the region of the central portion of the State. In thus expressing itself it should do it so unequivocally that there shall be no question as to our meaning. It should come in square and distinct tones, speaking the sentiments of this convention, which has a right to be heard, because it represents the agricultural and productive interests of the State. I trust that if the report of the committee, made this morning, is sufficiently clear, it may be adopted, or at any rate the convention adopt a decided resolution opposed to any division of the fund, and opposed to the location of the institution in any corner of the State.

Mr. Anderson. Being in the county that Miami University is in, I do not desire to make a speech on this subject, but being on the committee of the grounds and buildings, I wish to say that it is an error that this institution is rotten at the core, and not doing business. It is in as successful operation as at any time. We have buildings there not as elegant as this, but as to the low stories and uncomfortable rooms, it is not so. The stories are high. No elegance, but sound, strong, good walls; strong oak floors; recitation rooms of high stories. There is a large passage running through the building. The halls for the societies are elegant and well arranged. The chapel is not large but built with a high story I think we are in successful operation, considering we have had the war upon us. Our young men having volunteered and left their studies to go into the service, yet we have had something like one hundred and fifty students all the time. We are patronized from Indiana and from Kentucky, to be sure. It may be an objection, as some men say, to be in the corner of the State, but I want to correct the impression that we are run down. Notwithstanding the war, these fifteen thousand dollars have been accumulated within the last five years. Our surroundings there are equal to any college. We have three female colleges where there are not less than one hundred and fifty pupils in each of them. All have fine buildings after the most improved style. I do not know any place between here and there more sightly, or where there is better land. It is accessible from all parts of our State by railroad.

Mr. McClung. I offer the following as a substitute for the recommendation of the committee:

Resolved, That the donation made by Congress to the State of Ohio, for the endowment of colleges for the benefit of agricultural and mechanical arts, ought to be appropriated to the establishment of one college, at some point convenient of access for the State at large, attached to which should be an adequate farm for experiments. And that while at this college the leading object should be to teach such branches of learning as are related to agriculture and mechanical arts; provision should also be made for instruction in all the branches taught at the best colleges in the land, so as to promote the liberal education of the industrial classes.

We were almost a unit last year in reference to one college, and we understand by this resolution that we mean one college the same as last year.

The resolution was then adopted.

AFTERNOON SESSION.

The following topic in the report of the committee was taken up for discussion:

"What is the proper source from which the appointment of trustees and general management of an agricultural college should emanate."

Mr. Parish. I apprehend that there is some difficulty in coming to a satisfactory conclusion in reference to the matter. My impression is that the appointing power should be in the State Board of Agriculture, rather than in the convention. The parties having the management would be more permanent, and those members of the Board would have their attention drawn more directly to it. Another reason is this, that it would be conducted by what is sometimes termed close corporation, that the Legislature or State Board appoint a board of trustees for the management, and let that board of trustees fill vacancies that occur afterwards. That is not very republican or democratic, I am sure, but it would be the wisest mode of conducting an institution of learning of this kind.

The next proposition for consideration was taken up, viz:

Resolved, That the great want of American agriculture, &c.

No remarks were proposed and no action taken.

On motion, the convention adjourned.

MAJORITY REPORT. (SEE PAGE 76.)

To His Excellency Charles Anderson, Governor of Ohio:

The undersigned Commissioners, under an act of the General Assembly "To provide for the sale of land scrip and other purposes," passed April 13th, 1865, respectfully report that the appended propositions have been received from Mt. Union College, Farmers' College, Miami University, the village of Kent, and citizens of Worthington, each of which present some advantages; and we embrace this occasion to acknowledge the interest in practical education manifested by those who represent them.

After full examination, it is our opinion that Miami University is the best location for the college contemplated in said act. It is accessible to all parts of the State by the Cincinnati and Indianapolis Railway and its connections, and to the adjacent country by several fine turnpikes. A clear unqualified franchise; one hundred acres of good land in the pleasant and healthful village of Oxford, surrounded by lands adapted to experimental farming, which may be procured at a reasonable expense;

the old buildings of the University, being a hall, two blocks of students' rooms, and a small laboratory; fifteen thousand dollars of reserve funds; the pledge of one hundred thousand dollars by the trustees, alumni and friends of Oxford, for the erection of new buildings; the present endowment, yielding six thousand dollars a year; and the sacred duty of the State more liberally to administer the trust confided to it, and render this venerable seat of learning, where so many of her sons have been educated, the worthy representative of so great and good a State—are all inducements and considerations in favor of this location.

The offers of other institutions and individuals are liberal, but not sufficiently large and free from condition to ensure success. Not much of the scrip has been sold, and there is little disposition to increase the burdens of taxation for the purchase of lands and buildings and the furnishing of a new institution.

Under the act of Congress there can be no delay. Here is a college of our own, which it is both our right and duty to use. How can it be better employed? Its usefulness depends upon enlarged endowment; how can this best be done? It adds no new name to the too numerous catalogue of schools, and should not excite the jealousy of any of the friends of education.

The kind assistance we have received from eminent educators of the State, leads us to hope that this effort may meet their approval, and be cheered by their friendly aid. It is their University as well as ours; they can do much to help or hinder the undertaking. Its success will be a common blessing—its failure a common loss.

Section eleven of the act makes it our duty to propose and submit a detailed plan for the organization of the college. We have given to the subject much time and reflection, and yet feel ourselves poorly able to furnish a full and satisfactory statement of what ought to be done.

We are constantly reminded that all agricultural colleges have been failures. We desire not to add another to the list. The republic of letters is a close corporation, and watchful of innovations. We may not, therefore, deprive the students of the University of the privilege of pursuing the beaten track if they wish. Our object is to organize an institution "where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life." Let us try the experiment fairly, how much practical education and how much classical, or what mingling of the two, is best adapted to fit men for the active duties of this busy age and country, and give more or less attention to the one course or the other as time may solve the problem. So that if we fail to improve the agricultural and mechanical productions of the country, we may hope to impart a healthful culture to the men who represent the industry of the State, persuaded that a sure way of advancing a pursuit is to enlighten and elevate those who engage in it.

We respectfully recommend the General Assembly, at its next session, to organize Miami University pursuant to the act of Congress, approved July 2d, 1862, to set apart for that purpose one-half of the land scrip in the hands of the State, or the proceeds thereof, one-tenth of which to be expended in the purchase of land adapted to experimental farming, and the balance to the additional endowment of the College or University; that the other half of said scrip, or the proceeds thereof, be set apart for the endowment of a college in the northern portion of the State, after the experiment has been fairly made and a satisfactory location is presented, or in such other manner as may promote the interests of agriculture and the mechanic arts. We suggest that a board of twenty trustees be appointed, one-fourth of whom should be members of the State Board of Agriculture, that the Governor and Lieutenant Governor be ex-officio members of said board, and that the board should select an executive committee for each college organized under the act, to whom should be confided the active duties of managing the same. As so little has been realized from the sale of land scrip, we suggest that there be appropriated the sum of six thousand dollars annually, being equal to the present endowment of the University, and constituting altogether twelve thousand dollars, a sufficient sum for the support of eight professors, or more, if the rate of living shall be materially reduced, which appropriation may be reimbursed from the income hereafter to be derived from the proceeds of the land scrip.

The present buildings should be repaired with the money on hand, and the one hundred thousand dollars pledged should be expended in, say four buildings, sufficiently remote not to endanger each other in case of fire; an engine room and shop for mechanical experiments and work; a barn for agricultural operations; a hall for lectures and recitation rooms, and a home where every student may have healthful food and friendly care. The three large and excellent female seminaries in sight of the University indicate how well this can be done. The expenses of board may thus be so reduced as to allow no excuse for the pernicious practice of self-boarding. These buildings need not be large, but should be plainly and tastefully designed, and so located as to impart a cheerful air to the grand old *Campus*, heretofore so much neglected.

To what extent experiments in farming and mechanical pursuits may accompany the course of study, experience and the tastes and habits of the faculty alone can determine. It seems clear that manual labor should not be excluded, but rather enforced, in an institution intended alike to dignify and alleviate honorable toil. The student who is unwilling to work is already sufficiently provided for.

The great manufacturing city of Cincinnati is sufficiently near to admit of an occasional excursion to explore her busy shops and ponderous machinery.

Of the course of study, we speak with diffidence—the trustees and faculty can better determine it.

The regular college course is four years, and it seems well to adopt it; but whether spent chiefly in the classical or the practical departments, the honors should be the same and a diploma accordingly. There may be a two years' course—preparing the student for teaching or engaging in some one of the active duties of life for which his course of study may have fitted him, and a certificate accordingly; and a long or complete course, embracing the practical and classical, equal to the degree of Master, and evidenced by a medal or other insignia. Courses of lectures, with apt illustrations, not found in other institutions, may, at convenient seasons, call in the students of sister colleges, and the inquiring farmers and mechanics of the State. Indeed, we may hope that the University may become the home of eminent naturalists, whose works and words may bless the State.

The faculty may be organized somewhat as follows:

President, teaching Rhetoric, Mental and Moral Philosophy, and Constitutional Law;
Professors of Agriculture, with Botany;
Mechanics, with Natural Philosophy, Geology and Mineralogy;
Commerce, with Accounts, Penmanship and Laws of Trade;
Mathematics, Surveying and Military Tactics;
Languages;
Chemistry and Agricultural Chemistry;
Comparative Anatomy, Physiology and Veterinary Art.

The practical arrangement will of course depend upon the means provided, the acquirements of men at hand, and the extent to which this or that course may be pursued; the number may be increased when the full income is derived from the endowment; or tutors and assistants may be employed from the current income derived from students, who should be expected to pay the usual college fees, so that the State may not appear to underbid the colleges dependent upon private bounty; although an exception should be made in favor of the heroic soldiers who have preserved our country, and the orphans the fallen have left behind—for these we can never do too much.

In presenting this imperfect report of our labors and opinions to you, Sir, we are reminded that we received our appointment from your distinguished predecessor, the able, honest and lamented John Brough, who gave to the project of organizing a college for the elevation of the laboring classes a hearty and weighty support. We hope from you, Sir, a generous hand, and that your successor and the General Assembly may cordially co-operate in the speedy inauguration of a college which shall not be a failure.

Very respectfully submitted,

DARWIN E. GARDNER,
DAVID TAYLOR,
PETER THATCHER,
C. L. POORMAN.

December 1st, 1865.

MOUNT UNION COLLEGE.

Believing that the proper association of an Agricultural College with a Literary Institution would result to their mutual benefit, the Trustees of Mount Union College hereby make the following propositions to the Commissioners appointed in accordance with an act passed by the General Assembly of Ohio April 13th, 1865, to wit:

1. In case the State of Ohio will establish at Mt. Union, O., an Agricultural College, either distinct from or in connection with Mount Union College, the grounds, buildings and apparatus belonging to Mount Union College may be used by the Agricultural College without expense for use or repairs; and that all funds appropriated by the State, or arising from the sale of the congressional land scrip, and also the entire possession and management of the Agricultural College to be under the control and government of the State as the Legislature may provide, without let or interference with the character of Mount Union College as a Literary Institution. The Trustees of Mount Union College will guarantee to the State not only the free use of its grounds, buildings and apparatus, but will donate a few acres of good land, and will guarantee that all the land needed by the Agricultural College can be purchased in the vicinity at reasonable rates; and also, that the Literary department shall support itself, and that its management shall not interfere with the interests of the Agricultural College, and each is to be conducted with reference to the highest mutual interests of all concerned.* Or,

2. In case the General Assembly of Ohio will grant to Mount Union College a reasonable portion of the proceeds of the congressional land scrip, said College will provide for and establish an Agricultural Collegiate department or station, or the State may do it in connection with

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* For description, &c., of buildings, location, accessibility, &c., see Memorial to the Legislature, made a year ago last winter, printed in Proceedings of Senate.

Mount Union College, and the Trustees of said College will guarantee that they will faithfully and ecomically appropriate all the funds thus received from the State for experiments and Collegiate instruction in Agriculture and the Mechanic Arts, (or any other branches of learning for the industrial classes where the leading object is related thereto,) in such a manner as the Legislature of Ohio may provide.

O. N. HARTSHORN,
J. O. CHAPMAN,
G. W. CLARKE,
Executive Committee.

MT. UNION, near, Alliance, O.,
October 9th, 1865.

DUNLAP, O., June 27th, 1865.

Darwin E. Gardner, Esq., Chairman of Commissioners under the Act of the General Assembly of the State of Ohio of April 13th, 1865, *for the establishment of an Agricultural, Mechanical and Military College or Colleges, under the United States Grant of July 2d,* 1862.

DEAR SIR:—I address you in behalf of the Farmers' College of Hamilton county, Ohio, who, through their Stockholders, Scholarshipholders, Donors and Trustees, have proposed, and continue to propose, to donate their entire property, real, personal and mixed, for the objects for which you were appointed, and await your examination, that you may be able to report the facts in connection therewith, for which a committee of the Stockholders and Trustees will give you every facility in their power, in the mode which you may designate.

On the 25th day of May last we forwarded to Miles Greenwood, Esq., of Cincinnati, a member of your commission, a request that the College and grounds might be accepted by the State, as they had been offered, with sundry papers relating to the subject, viz:

A. A memorial to the Legislature, including a report to the Stockholders, and their action thereon.
B. Report of a joint committee of the General Assembly, after an examination of the premises in March, 1864.
C. A communication to the Cincinnati Gazette on the subject.
D. Report of a meeting at the Mechanics' Institute, Cincinnati.

These papers give a general view of the whole matter, to which we are desirous of giving any particulars you may desire, and hope it will accord with the views of the Commission to visit the premises, so that our claim to have it accepted may be presented upon their just grounds.

The delay in presenting this matter formally to your Board has arisen from the fact that more than two years have elapsed since it was first offered, and that a meeting of the Stockholders and Trustees was called for the 21st June inst. to give expression to their present wishes and views upon the matter, which resulted in a desire of making the donation to the State.

In behalf of the College,
Respectfully submitted,
C. RICHARDS.

MIAMI UNIVERSITY.

The undersigned, members of the Board of Trustees of Miami University, in view of the proposition to locate in connection with that University, by the State of Ohio, an Agricultural College, hereby agree that if such a location is made, we will resign our positions as such Trustees, in order to enable the State to reorganize the Board of Trustees in a way suited to its additional endowment.

FERGUS ANDERSON,
JOHN M. MILLIKIN,
WM. BECKETT,
O. G. GOODRICH,
JOHN W. HERRON,
B. W. CHIDLAW,
JOHN G. LOWE,
ROBT. W. STEELE,
JAS. F. CHALFANT,
C. N. OLDS,
G. VOLNEY DORSEY,
ALBERT GALLOWAY,
GEO. W. HOLMES,
JOHN Y. SCOULLER,
A. H. DUNLEVY,
W. S. GROESBECK,
R. M. CORWINE.

October 25*th*, 1865.

At the annual meeting of the Board of Trustees of Miami University, held June 28, 1865, the following paper was unanimously adopted, to wit:

The Miami University, the Legislature of Ohio assenting thereto, makes the following propositions to the State of Ohio, for one-half of the Agricultural fund—

1. Miami University will furnish, for the use of the Agricultural College, all necessary buildings and will keep the same in repair, from the present funds of the University. The Board has determined to raise $50,000, and in addition, they can add to this $25,000 for the purpose of new buildings.
2. Miami University will at once establish an Agricultural College, of the character prescribed by the act of Congress, and appropriate to the support of that College all the income derived from the Agricultural fund.
3. Miami University will apply all their present funds arising from ground-rents and tuition fees, which are not required for the buildings, to the support of the professorships having the least connection with Agriculture and Mecnanic Arts.
4. Students of the Agricultural College shall be entitled to the benefit of the Library, apparatus and professorships supported by the present funds of the University.

5. Miami University offers for the use of this Agricultural College forty (40) acres of land adjoining the town of Oxford, either to be part of an experimental farm or to be sold for the purpose of purchasing one elsewhere; also the sixty (60) acres of the Campus for ornamental and landscape gardening.

6. The present income of the College, amounting to from $11,000 to $15,000, will be added to the income arising from the Agricultural fund, and the whole applied to the support of a College in which shall be taught "the branches of learning related to Agriculture and the Mechanic Arts" and "Military Tactics," "not excluding other scientific and classical studies."

A true copy from the Minutes.

R. H. BISHOP, *Sec'y M. U.*

MINORITY REPORT.

To His Excellency Charles Anderson, Governor of Ohio, Greeting:

The subscriber, one of the Commissioners appointed under the act of the late General Assembly, to examine and report their opinion as to the place for locating a College or Colleges, under the act of Congress, approved July 2, 1862, "for the endowment, support and maintenance of at least one College, where the leading object shall be—without excluding the other scientific and classical studies, and including military tactics—*to teach such branches of learning as are related to Agriculture and the Mechanic Arts.*"

There would seem to be a propriety in accepting this report, from the fact that I do not concur in that which will be made to you, and that the law requiring this commission provides that "two shall be selected so as to represent the mechanical and manufacturing interests of the State," and that with these my own interests are and have been associated. To use the language of Gov. Brough: it is evident that the intention of the enactment is to institute a new and distinct species of education, one not heretofore favored or specially encouraged by State or National aid. It is also evident that the *purpose* to be accomplished, in the application of that instruction, is to the advancement of the agricultural and mechanical interests of the country; in other words, it is the instruction of the industrial classes, within themselves, in *that which pertains to their own callings*, in order that they may make practical and manual applications of it, incidentally for their own benefit, but actually for the increase of national production and wealth." These practical suggestions might well be quoted entire, but I shall only use his concluding remark, "respectfully suggesting that its management be intrusted to men of intelligence and integrity, practically associated with the interests it is designed to benefit."

One of the objects is to report "the inducements which may be offered in the way of land, buildings, money or other valuable property for said College or Colleges." In this I shall confine myself to the offers of Miami University, at Oxford, in Butler county, and the Farmers' College of Hamilton county; the former a time honored institution of learning, endowed with the revenue of the interest on the sale of a township of land, (over 23,000 acres) understood to be an annual rental of about $6,000, with which, and the fees for tuition, &c., she has during a long course of years fitted a great number for high usefulness, particularly in professional life. It is to be hoped she will be more fully endowed, but I cannot suppose that this fund is the legitimate one to be appropriated to that object, and the general cause of education can ill afford to lose her teachings in the line she has so long occupied. She is too remote from extensive mechanical operations, has no buildings for the contemplated objects; those she has are in bad taste, old and dilapidated, worth scarcely more than the second hand materials; her grounds, said to be about 100 acres, are of fair aspect, in a healthy region and surrounded by a good community; but except a few shade and ornamental trees, and being fenced, partially with osage hedge, are entirely uncultivated, the primitive forest, partially thinned, covers a large part of it. As buildings, so manifestly wanted even for their present objects, cannot be erected from the U. S. grant, it is proposed by the friends of that institution to raise a sufficient fund for that object, with what success I am not informed.

It might be well to examine, but I am not aware of any impediment in the grants and titles of the College and estates to be injuriously affected by the radical change in its objects, which granting it the U. S. fund will obviously require.

The Farmers' College is likewise in a healthy, picturesque and pleasant locality, airy and unconfined; with room for any desirable increase, in a well settled, intelligent neighborhood, easy of access from all parts, and as near our most populous city as will comport with a due regard to health and morals; as evidence of the latter, it is said ardent spirits are not retailed within two miles of it. The lands consist of 98 90-100 acres, which, from its variety in quality and surface, is peculiarly fitted for an Experimental Farm, to which use it has been partially applied. The Botanical grounds, about 25 acres, are set with almost every variety of tree, plant and shrub of our climate, botanically arranged by Kern, a genius at landscape gardening. I present a map of the College grounds, as a part of this report, with the mention that the inside division lines not being established, may be changed to suit future objects, and would also refer to the joint report of a committee of the last Legislature, some 20 in number, who visited the College in March, 1864, published in the Appendix to the Senate Journal, pages 36 to 44. The buildings and their condition are described in that report, except three cottage buildings not mentioned. There is a complete working Chemical Laboratory and a considerable Library.

But the principal object I have in presenting the claims of this institution is, its proximity to the mechanical and manufacturing emporium of the State. A mere mechanical school would, doubtless, be better and more useful gotten up within the city, but as agriculture and military education are to be taught from the same grant, the whole are better subserved by being established in its immediate neighborhood.

As to "preparing a detailed plan as to the organization of said College or Colleges and the necessary buildings therefor," I shall only make the suggestion that the objects are so new and untried, that it will probably take several years before any will be competent to answer it. Harvard, from her Independent Scientific School, is now throwing light into the dark places of Brazil, and no doubt Europe will enlighten us in mastering these new objects. High learning has been too proud to make it any *leading object* to strengthen the weak and elevate the humble, as agricultural and mechanical objects have generally been considered; but the tendency of genius is prophetic, and it evidently is to ameliorate the condition by improving the actual every day objects and duties of common life. Religion, Morals and Science, are co-operating with their powerful aid; education will not lag behind, and hence Colleges for Farmers and Mechanics, with an infusion of Military art for defense, are now like the healthy infant, inanely throwing out its arms to gather strength for adult objects; hence the importance of giving the proper direction to this munificent grant, so that it may not be hindred in looking back for precedents, when it should be active in forwarding very partially developed anticipations.

Respectfully submitted,

M. GREENWOOD.

Cincinnati, Dec. 30, 1865.

OHIO STATE FAIR FOR 1865.

The Sixteenth Annual Ohio State Fair was held on the 12th, 13th, 14th and 15th of September, 1865, in Stewart's Grove, adjoining the city of Columbus, being the same ground on which the preceding Fair was held. The weather during the Fair was very fine. The attendance was not much larger than that of the preceding year, although a much larger attendance was expected.

Every essential which constitutes the success of the Fair, in the largest sense, was fully represented. In all the live stock departments—Horses, Cattle, Sheep, Swine and Poultry—some of the finest and best examples in the State were on exhibition. The mechanical, especially the agricultural implement department, was perhaps at no previous Fair so fully represented. The show of fruits and farm products was good. A large Fine Art hall was erected during the summer, and at the Fair the show in this hall was one of the most attractive features.

But the intelligent reader will obtain a better idea of the exhibition from the following list of entries, awards and committees' reports, than possibly could be conveyed in a prefatory notice

The following is a list of entries and awards at the State Fair of 1865:

ENTRIES OF THOROUGHBRED CATTLE.

SHORTHORNS.

1. R. Baker, Avon, Lorain county, bull, New Years Day, 2 years old.
2. same " " heifer, Rose, 2 yrs. old.
3. A. A. French, Reynoldsburg, Franklin co., bull, Prince Albert, 4 yrs. old.
4. Daniel McMillan, Jr., Xenia, Green co., bull, Grand Duke, 7 yrs. old.
5. same " bull, General Grant, 3 yrs. old.
6. same " bull, Sheridan, 1 yr. old.
7. same " bull calf, Oakland Oxford, 7 mos. old.
8. same " cow, Zenaida, 7 yrs. old.
9. same " cow, Duchess of Oakland, 4 yrs. old.
10. same " cow, May Day, 6 yrs. old.
11. same " cow, Louan XXI., 3 yrs. old.
12. same " heifer, Amazon, 2 yrs. old.
13. same " heifer calf, Portulacca, 3 mos. old.
14. Samuel Barr, Columbus, Franklin co., bull, Duke of Plumwood, 5 yrs. old.
15. Charles M. Clark, Springfield, Clark co., bull, Duke of Clark, 3 yrs. old.
16. same " cow, Anna Hunt, 5 yrs. old.
17. same " cow, Kitty Clover, 5 yrs. old.
18. same " cow, Kitty Clyde, 2 yrs. old.

19. Charles M. Clark, Springfield, Clark co., cow, Lady of Clark, 2 yrs. old.
20. same " heifer, Molly.
21. same " heifer, Miss Wiley.
22. same " bull calf, Col. Ellsworth, 2 mos. old.
23. same " bull calf, Gen. Sheridan, 1 month old.
24. L. B. Sprague, " bull, Gen. Burnside, 2 yrs. old.
25. L. Goodale, Columbus, Franklin co., cow, Daisy, 7 yrs.
26. same " " cow, 3 yrs. old.
27. same " " bull, 13 mos. old.
28. H. H. Hankins, Reesville, Clinton co., bull, Duke of Highland, 3 yrs. old.
29. same " " cow, Rose Bud, 4 yrs. old.
30. same " " cow, Emma, 3 yrs. old.
31. same " " cow, Sunbeam, 9 yrs. old.
32. same " " calf, Red Jacket, 5 mos. old.
33. J. Denton, Darbyville, bull, Young Starlight, 2 yrs. old.
34. same " heifer, Red Rose, 2 yrs. old.
35. James Baker, Johnstown, Licking co., bull, 7-8 Blood, 3 yrs. old.
36. Wm. Matthews, Etna, bull, Grant, 2 yrs. old.
37. same " cow, Joanna, 4 yrs. old.
38. same " cow, Lizzie, 4 yrs. old.
39. same " cow, Mary Ann, 4 yrs. old.
40. same " cow, Snow Drop, 2 yrs. old.
41. same " cow, Victoria, 2 yrs. old.
42. same " heifer calf, Mary Queen of Scots, 7 mos. old.
43. same " heifer calf, Miss Grant, 4 mos. old.
44. Wm. Warfield, Lexington, Ky., bull, Duke Frederick, 1 yr. old.
45. same " 2 bull calves, under 1 year.
46. same " cow, Fanny Leslie, 10 yrs. old.
47. F. W. Renick, Bloomfield, bull.
48. same " cow, 4 yrs. old.
49. same " bull calf.
50. same " heifer, 1 yr. old.

AWARDS ON THOROUGHBRED CATTLE.

SHORTHORNS.

Best bull, 3 yrs. old and over, Daniel McMillan, Jr., Xenia	$50
2d best bull, 3 yrs. old and over, H. H. Hankins, Reesville	30
Best bull, 2 yrs. old and under 3, Jethro Denton, Darbyville	30
2d best bull, 2 yrs. old and under 3, L. B. Sprague, Springfield	20
Best bull, 1 yr. old and under 2, Wm. Warfield, Lexington, Ky	25
2d best bull, 1 yr. old and under 2, C. M. Clark, Springfield	15
Best bull calf, C. M. Clark, Springfield	10
2d best " " "	5
Best cow, 3 yrs. old and over, D. McMillan, Xenia	50
2d best cow, 3 yrs. old and over, Wm. Warfield, Lexington, Ky	30
Best cow, 2 yrs. old and under 3, C. M. Clark, Springfield	30
2d best " " " "	20
Best heifer, 1 year old and under 2, " "	25
2d best heifer, 1 year old and under 2, Wm. Matthews, Etna	15
Best heifer calf, C. M. Clark, Springfield	10

2d best heifer calf, Daniel McMillan, Xenia.. $5

CHARLES PHILLIS,
J. D PETTIT,
EMERSON SMITH,
HUGH BELL,
A. P. HOWARD,
Awarding Committee.

ENTRIES OF DEVON CATTLE.

1. W. F. Hubbard, Ashtabula, Ashtabula co., bull, Garibaldi, 3 yrs. old and over.
2. same " " cow, Ida IV., " "
3. same " " heifer, La Belle.

AWARDS ON DEVON CATTLE.

Best cow, 3 yrs. old and over, Ida IV., W. F. Hubbard, Ashtabula.................. $25

P. HITCHCOCK,
E. RIDDLE,
E. SPENCER,
JOHN SEARS,
J. O'B. RENNICK,
Awarding Committee.

ENTRIES OF HEREFORD CATTLE.

1. Thomas Aston, Elyria, Lorain co., bull, General, 1 yr. old.
2. same " " bull calf, Major, 3 mos.
3. same " " cow, Beauty, 9 yrs. old.
4. same " " cow, Jeannie, 7 yrs. old.
5. same " " cow, Florena, 2 yrs. old.
6. same " " heifer, Belle, 1 yr. old.
7. same " " heifer calf, Edith, 4 months old.

AWARDS ON HEREFORD CATTLE.

Best bull, 1 year old and under 2, General, Thomas Aston, Elyria			$15
2d best bull calf, Major,	do	do	3
Best cow, 3 years old and over, Jeannie,	do	do	25
2d best cow, 3 years old and over, Beauty,	do	do	15
Best cow, 2 years old and under 3, Florena,	do	do	20
Best heifer, 1 year old and under 2, Belle,	do	do	15
Best heifer calf, Edith,	do	do	5

LUCIUS B. WING,
P. HITCHCOCK,
E. SPENCER,
JOHN SEARS,
J. O'B. RENNICK,
Awarding Committee.

ENTRIES OF WORK OXEN AND STEERS, FAT CATTLE AND MILCH COWS.

1. R. Baker, Avon, Lorain county, cow, Roan, 9 years old.
2. same Avon, " " True, 6 years old.
3. Leonard Hough, Berkshire, Delaware county, bullock, Fat Bullock, 6 years old.
4. W. T. Decker, Groveport, Franklin county, oxen, yoke of oxen, 4 years old.

5. Charles M. Clark, Springfield, Clark county, cow, Easter Day, 12 years old.
6. Daniel McMillan, jr., Xenia, Green county, cow, May Day, 6 years old.
7. John D. Miller, Lockbourne, cow.
8. James Baker, Johnstown, Licking county, cow, 5 years old.
9. same " " cow, 4 years old.
10. same " " heifer, 2 years old.
11. John Enoch, jr., West Liberty, steer, Perfection, 2 years old.

AWARDS ON WORK OXEN AND STEERS, FAT CATTLE AND MILCH COWS.

Best yoke of oxen, 4 years old and over, W. T. Decker, Groveport	$25 00
Best bullock, 4 years old and over, Leonard Hough, Berkshire	40 00
Best steer, 2 years old and under 3, Perfection, John Enoch, jr., West Liberty	20 00
Best cow or heifer, Easter Day, Chas. M. Clark, Springfield	20 00
2d best cow or heifer, May Day, Dan'l McMillan, Xenia	10 00
Best milch cow of any breed, Roan, R. Baker, Avon, O	35 00
2d best " " True, " "	20 00

J. C. STEVENS,
N. PAULLIN,
JOHN SEARS,
Awarding Committee.

STATEMENT OF R. BAKER.

AVON, LORAIN CO., OHIO, Sept. 7, 1865.

Roan, a milch cow, entered and owned by R. Baker, Avon, O., nine years old; was got by Corsair out of a quarter Durham cow. Roan calved March 23, 1865. She was put to bull again July 5th.

Roan gave in ten days, commencing June 14th, 421 lbs. of milk, from which was made 20¼ lbs. of butter. She also gave in ten days, commencing August 12th, 332 lbs. of milk, from which was made 16¼ lbs. of butter.

The cow was fed on grass only, from May 1st to 7th September.

The weight of cow is 1,092 lbs.

R. BAKER.

This is to certify that I milked the cow Roan, helped to weigh the milk, assisted in making and weighing the butter, and believe the above statements are correct.

ALFRED BAKER.

Personally came before me, a justice of the peace for Lorain county, R. Baker, and Alfred Baker and made oath that the above statements are correct.

PHILIP SAWYER,
Justice of the Peace.

AVON, LORAIN CO., O., Sept. 7, 1865.

True, red roan milch cow, entered and owned by R. Baker, Avon, O., is 6 years old, was got by Sir Humphrey 974. Out of Empress, by Corsair. True calved April 2, 1865; was put to bull again July 25th.

True gave in ten days, commencing June 14th, 410 lbs. milk, from which was made 18¾ lbs. of butter. She also gave in ten days, commencing August 12th, 325 lbs. of milk, from which was made 15¾ lbs. of butter.

The cow was fed on grass only from 1st of May till 7th of September.

Weight of cow, 1,081 lbs.

R. BAKER.

This is to certify that I milked the cow True, helped to weigh the milk, assisted in making and weighing the butter, and believe the above statements are correct.

ALFRED BAKER.

Personally came before me, a justice of the peace for Lorain county, R. Baker and Alfred Baker, and made oath that the above statements are correct.

PHILIP SAWYER,
Justice of the Peace.

ENTRIES IN SWEEPSTAKES—CATTLE.

1. Daniel McMillan, Xenia, Greene county, bull, Gen. Grant, 3 years old.
2. same " " " Grand Duke, 7 years old.
3. same " " cow, Jessie, 6 years old.
4. same " " " Zenaida, 7 years old.
5. same " " " Louan, 21st, 3 years old.
same " " " Herd of 1 bull and 4 cows, to-wit; Bull Gen'l Grant, and cows Jessie, Zenaida, Duchess of Oakland and Louan, 21st.
7. Samuel Barr, Columbus, Franklin county, bull, Duke of Plumwood, 5 years old.
8. H. H. Hankins, Reesville, bull, Duke of Highland.
9. same " herd of one bull and 4 cows, to-wit: Bull Duke of Highland, and cows Emma 4th, Rose Bud, Emma, and Sunbeam.
10. H. H. Hankins, Reesville, Clinton county, cow, Emma.
11. same " " " Rose Bud.
12. same " " " Sunbeam.
12½ Jethro Denton, Darby Creek, Madison county, bull, Young Starlight, 2 years old.
13. same " " heifer, Red Rose, 2 years old.
14. W. Matthews, Etna, bull Grant and 4 cows, viz: Lizzie, Joanna, Mary Ann, and Snow Drop.
15 W. Matthews, Etna, Licking county, cow, Mary Ann, 4 years old
16. same " " " Joanna, 4 years old.
17. Wm. Warfield, Lexington, Ky., bull, Duke of Frederick, 1 year old.
18. same " cow, Fanny Leslie, 10 years old.
19. Chas. M. Clark, Springfield, Clarke county, bull, Duke of Clarke, 3 years old.
20. same " " bull, Duke of Clarke, 2d, 13 mos. old.
21. same " " cow, Flora Bell, 6 years old.
22. same " " cow, Kitty Clover, 5 years old.
23. same " " Kitty Clyde, 2 years old.
24. same " " Lady of Clarke, 2 years old.
25. same " " herd, bull Duke of Clarke, Flora Dale, Kitty Clover, Kitty Clyde, and Lady of Clarke.
26. L. B. Sprague, Springfield, Clarke county, bull, Gen'l Burnside, 2 years old.

AWARD ON SWEEPSTAKES—CATTLE.

Best bull and 4 cows, C. M. Clark, Springfield	$200 00
2d best bull and 4 cows, Daniel McMillan, jr., Xenia	50 00
Best bull of any age or class, Gen'l Grant, Daniel McMillan, jr., Xenia	100 00
Best cow " " Flora Bell, C. M. Clark, Springfield	50 00

F. W. RENICK,
JOHN REBER,
DAVID PETTIT,
T. S. O'BANNON,
Awarding Committee.

PEDIGREE OF PRIZE ANIMALS.

GENERAL GRANT. See Report of 1864, page 91.

No. 11.—LOUAN, 21st.

RED. Bred by Jeremiah Duncan, Esq., Paris, Kentucky. Calved March 13, 1862.

	Louan, 21st	By	Duke of Airdrie	2743
1st.	Louan, 2d		Gold Dust	534
2d.	Louan		Imp. Otley	(4632)
3d.	Cambria		Bertram, 2d	21, (3144)
4th.	Virginia, 2d		Bertram	(1716)
5th.	Lucilla, 2d		Memnon	(1223)
6th.	Virginia		General	(272)
7th.	Rosemary		Flash	(261)
8th.	Red Rose		Petrarch	(488)
9th.	Bright Eyes		Alexander	(20)
10th.	Red Acomb		Traveller	(655)
11th.	———		Son of Bolingbroke	(86)
12th.	A cow bought of Mr. Boazman of Stanton, got by Jas. Brown's Red Bull			(97)

No. 44.—PORTULACCA.

RED. Calved June 14th, 1865.

	Portulacca	By	Gen. Grant	4825
1st.	4th Duch. of Oakland		Duke of Thorndale	2787
2d.	Delightful		Imp. Czar	395
3d.	Aylesby Lady		Baron Warlaby	(7813)
4th.	Adelaid		Ganthorpe	(2049)
5th.	Mary		Cossack	(1880)
6th.	———		Sir Henry	(1446)
7th.	———		Young Albion	(730)
8th.	———		Marske	(418)
9th.	———		Blythe Comet	(85)

DUKE OF CLARKE. See Report of 1864, page 95. See Report of 1864, page 93.

NEW YEARS'S DAY.

Red and white. Bred by and the property of R. Baker, Avon, Lorain County, Ohio. Calved January 1st, 1863.

Got by Highland (4898) out of Arabella Stewart by Archer, 1959; Cynthia, by Prince Albert, 2069; Jenny Lind, by Dallimore, 400; Roaney, by Cleveland, 38; Lucretia, by imported Berry (3141); imported Lady Day, by Armitage (1655); Superior, by Gambier (2046); Splendor, by Anson (1639); Sophia, by Cupid (938), by Merlin (429), by Windsor (698), by R. Colling's White Bull (151), bred by R. Colling.

Rose.

Light roan. Bred by Wm. Warfield, Lexington, Kentucky. The property of R. Baker, Avon, Lorain County, Ohio. Calved May 23d, 1863.

Got by Young Duke out of Lily, by Yorkshire Maynard, 2401; (14043) Fairfax, by Thomas Fairfax, 3491; Nancy, by Exchange, 1523; Red Rose, by George (2059); Imported Red Rose, by Earnesty; Rosney, by Eryholme (1018), by Barmpton (54).

Note.—Young Duke was bred by R. A. Alexander; was got by Duke of Airdrie (12730) out of imported Rosabella, by Bridegroom (11203), &c.

Devon Heifer Ida IV.

Calved April 12th, 1861. Bred by C. A. Ely, Elyria, Ohio.

Sire Chippewa; g. sire Chingagook; dam Ida II.; g. dam Ida I.; g. g. dam Victoria (1513).

Heifer Calf La Belle.

Calved January 21st, 1865.

Sire Garibaldi; g. sire Young Stanley (pedigree recorded in Provincial Herd Book, Canada); dam Ida IV.; g. dam Ida II.; g. g. dam Ida I. g. g. g. dam Victoria (1513).—Am. Herd Book. G. sire, on Davis side, Chippewa; g. g. sire Chingagook, dam imported Helena.

Devon Bull Garibaldi.

Calved Jan. 11, 1860.

Dam Kate Hayes (No. 79, Prov. Herd Book); g. dam Jenny Lind (No. 22, Pro. Herd Book). Sire Young Stanley; also entered in Prov. Herd Book.

I hereby certify that the above is a true and correct pedigree of the bull owned by W. F. Hubbard, Esq., and that the same was exhibited at the Provincial Fair, in September and October, 1860.

J. C. Rykert, M. P. P.,
County of Lincoln.

St. Catharines, Aug. 12, 1861.

ENTRIES OF THOROUGHBRED HORSES.

1. R. W. Dolson, Columbus, Franklin county, stallion, Woodburn Scythian, 6 yrs. old.
2. same " " stallion, Boston, 17 years old.
3. A. D. Anderson, Xenia, Greene county, stallion, Ben Butler, 6 years old.
4. J. O. B. Renick, Columbus, Franklin county, stallion, Ivanhoe, 4 years old.
5. same " " mare, Nell Gwynne, 3 years old.
7. Jas. Thomas, " " stallion, Charles Foster, 3 years old.
8. Reber & Kutz, Lancaster, Fairfield county, stallion, Revenge, 7 years old.
9. same " " mare, Lady Lancaster, 8 years old.
10. same " " stallion, Rochester, 1 year old.
11. same " " filley, Mirona, 1 year old.
12. same " " sucking mare colt.
13. same " " sucking mare colt.
14. S. A. Campbell, Circleville, Pickaway county, stallion, Captain Gay.
15. Dille & Messler, Dayton, Montgomery county, stallion, Bay Burton, 6 years old.
16. A. C. Jennings, Urbana, Champaign county, stallion, Colossus, 7 years old.
17. Jas. Alexander, Circleville, Pickaway county, stallion, Woodford, 4 years old.
18. Wm. McDonald, Columbus, Franklin county, mare, Vivandiere, 4 years old.

AWARDS ON THOROUGHBRED HORSES.

Best stallion, 4 years old and over, Revenge, Reber & Kutz, Lancaster	$50
2d best stallion “ Ben Butler, B. D. Anderson, Xenia	25
Best stallion, 3 years old and under 4, Charley Foster, Jas. Thomas, Columbus	25
Best stallion, 1 year old and under 2, Rochester, Reber & Kutz, Lancaster	15
Best brood mare, 4 years old and over, Lady Lancaster, Reber & Kutz, Lancaster	30
Best brood mare, 3 years old and under 4, Nell Gwynne, J. O. B. Renick, Columbus	20
Best filley, 1 year old and under 2, Mirona, Reber & Kutz, Lancaster	10
Best sucking mare colt, Reber & Kutz, Lancaster	10
2d best “ “ “	5

Awarding Committee.—ALEX. WADDLE, JERH. DUNCAN, A. P. HOWARD.

ENTRIES IN ROADSTERS.

1. Wm. Long, Xenia, Greene county, stallion, Blucher, 8 years old.
4. A. W. Dolson, Columbus, Franklin county, stallion, Bellfounder, 6 years old.
5. Thos. Jones, Darby Creek, Madison county, stallion, Sir Tatton, 4 years old.
6. Robert Lewis, Dublin, Franklin county, brood mare, 4 years old.
7. same “ “ “ 3 “
8. William Wylie, Big Island, Marion county, stallion, Young Flying Cloud, 2 yrs. old.
9. D. B. Anderson, Xenia, Greene county, stallion, Young Perfection, 2 years old.
10. Reuben Durfee, Delaware, Delaware county, gelding, 6 years old.
11. J. W. McCann, Norwich tp., Franklin county, stallion, Slashum, 2 years old.
12. Jos. Crippen, Worthington, Franklin county, brood mare, Tom Morgan, 9 years old.
13. J. W. Connelly & Co., Columbus, Franklin county, stallion, Henry Brown, 8 yrs old.
14. Calvin McDaniel, Blendon tp., Franklin county, gelding, Frank, 7 years old.
15. D. L. Holton, “ “ stallion, Wm. Henry, 3 years old.
16. Geo. Donaldson, Columbus, “ mare, Bell, 6 years old.
17. Edward Cook, Chillicothe, Ross county, stallion, Little Webb, 7 years old.
18. J. W. Cox, Columbus, Franklin, county, mare, Fancy, 4 years old.
19. Van R. Glazier, Columbus, Franklin county, horse, Bob, 9 years old.
20. N. Smither, Troy, Miami county, stallion, Black Hawk, 9 years old.
22. Wm. H. Kurtz, Wagram, Licking county, stallion, Morgan, 7 years old.
23. S. Bennett, Lithopolis, Pickaway county, Paul Jones, 10 years old.
24. E. L. Powell, Urbana, Champaign county, stallion, Flying Cloud, 6 years old.
25. Jas. Beers, Worthington, Franklin county, brood mare, Fanny, 7 years old.
26. Jas. Buckingham, Zanesville, Muskingum county, stallion, Pretty Boy, 9 years old.
27. S. A. Campbell, Circleville, Pickaway county, stallion, Benicia Boy.
28. T. T. Kilbury, Pleasant Valley, stallion, Lexington, 4 years old.
29. James Alexander, Circleville, Pickaway county, stallion, Dick, 4 years old.
30. Lamb & Weston, Welchfield, pair of matched roadsters, 8 and 12 years old.
31. same “ stallion, Champion searcher, 8 years old.
52. Marsh & Albaugh, Circleville, Pickaway county, stallion, Captain Gay, 6 years old.
33. S. A. Campbell, “ “ stallion, Dave Crockett, 4 yrs. old.

AWARDS ON ROADSTERS.

Best stallion, 4 years old and over, Morgan, W. H. Kurtz, Wagram	$50
2d best “ “ Henry Brown, J. W. Conoulley, & Co., Columbus	25

Best stallion, 2 years old and under 3,	Young Flying Cloud, W. Wylie, Big Island	$20
2d best “ “	Young Perfection, B. D. Anderson, Xenia	10
Best brood mare over 4 years old.		
2d best “ “		
Best brood mare, 3 years old and under 4,	Robert Lewis, Dublin	20

Awarding Committee.—JOHN M. MILLIKEN, WILLARD HICKOX.

ENTRIES IN HORSES FOR GENERAL PURPOSES.

1. J. A. Johnson, Urbana, Champaign county, brood mare, Lady Countess, 7 years old.
2. same “ “ stallion, Perfection Jr., 7 years old.
3. M. Miller, St. Paul, Pickaway county, stallion, Eclipse, 5 years old.
4. W. T. Decker, Groveport, Franklin county, sucking stallion colt.
5. same “ “ brood mare, Bird, 8 years old.
6. Moses Seymore, “ “ stallion, Comet, 6 years old.
7. G. W. Williams, Columbus, “ brood mare, Jenny, 3 years old.
8. J. P. Stockton, “ “ brood mare, 4 years old.
9. John M. Morgan, Grove City, “ stallion, Wm. G. Foster, 1 year old.
10. same “ “ sucking stallion colt.
11. same “ “ brood mare, Belle Cora, 4 yrs and over.
11½. S. C. Preston, “ “ mare and colt.
12. same “ “ colt
13. John Decker, Sr., Lockbourne “ brood mare, Rosanna, 4 yr. old and over.
14. same “ “ filley, 1 year old.
15. Henry Emerick, Sr., Columbus, “ stallion, Gen. Phil Sheridan, 7 years old
16. H. Angell, Columbus, Franklin county, stallion.
17. B. D. Anderson, Xenia, Greene county, mare, Flora, 3 years old.
18. same “ “ stallion, American Boy, 2 years old.
19. J. A. Terry, Columbus, Franklin county, sucking mare colt, Young Maid, 1 year old.
20. T. T. Kilbury, Pleasant Valley, Madison county, stallion, Bally Taylor, 2 years old.
21. Sims McCannon, Norwich tp., Franklin county, pair matched horses, 5 years old.
22. N. Van Loon, Worthington, “ brood mare, 7 years old.
23. J. G. Strain, Delaware, Delaware county, brood mare, Black Hawk, 9 years old.
24. Milton Sackett, “ “ brood mare, 11 years old.
25. J. L. Stevens, Columbus, Franklin county, stallion, Sorrel Bashaw, 9 years old.
26. Ed. R. Woodrow, “ “ filley, Queen, 1 year old.
27. Marshall Guy, Darby Creek, Madison county, mare, 5 years old
28. same “ “ sucking mare colt, 4 months old.
29. Thos. S. Jack, Lebanon, stallion, Proud Cadmus, 2 years old.
30, Geo. Moore, Columbus, Franklin county, stallion, Blood of Heart, 2 years old.
31. R. S. Ustick, Cedarville, gelding, Dick, 9 years old.
32. same “ brood mare, 5 years old.
33. John Penn, Dublin, Franklin county, stallion, 3 years old.
34. Philip C. Tussing, Madison tp., Franklin county, mare, Flora, 2 years old.
35. James McDonald, Carroll, stallion, Toby, 1 year old.
36. same “ brood mare, 8 years old.
37. Monroe Pegg, Mifflinville, colt, 1 year old.
38. J. D. Miller, Lockbourne, Franklin county, brood mare, 3 years old.
39. same “ “ sucking stallion colt, 5 months old.
40. Chas. H. Newell, Dublin, Franklin county, stallion, Bull of the Woods, 4 years old and over.

41. Chas. H. Newell, Dublin, Franklin county, mare and colt (colt not 5 weeks old), 4 years old.
42. Charles Stewart, Alexandria, brood mare, Flora Temple, 2 years old.
43. same " gelding, Jack, 3 years old.
44. same " stallion, Bill, 5 years old.
45. D. R. Lawrence, Columbus, Franklin county, gelding, John Morgan, 6 years old.
46. John D. Miller, Lockbourne, " brood mare, 3 years old.
47. C. C. Dill, Groveport, " stallion colt, 10 months old.
48. Jas. T. Piercy, " " brood mare, Polly, 4 years old.
49. J. L. Shaw, Spring Hills, Champaign county, stallion, Simon Pure, 8 years old.
50. V. M. Wood, Center Village, Delaware county, brood mare, Jane, 7 years old.
51. Ezra Madden, Fultonham, brood mare, Bet, 4 years old.
52. Wm. M. Long, Xenia, Greene county, stallion, Henry Clay, 6 years old.
53. Wiley & White, Newark, Licking county, stallion, Young Searcher, 4 years old.
54. Z. Parret, Columbus, Franklin county, mare, Polly Hopkins, 2 years old.
55. G. S. Dildine, Groveport, Franklin county, stallion, Mack, 1 year old.
56. John Syler, Columbus, " filley, Nelly, 1 year old.
57. George Tussing, Bazil, Fairfield county, stallion Duroc, 7 years old.
56. John W. Slyh, Columbus, Franklin county, brood mare, 2 years old
57. L. S. and C. S. Crim, Galion, stallion Captain Fairfield, 7 years old.
58. J. C. Noe, Reynoldsburg, Franklin county, stallion Bellfounder, 3 years old.
59. Alonzo Lumbert, Delaware, Delaware county, brood mare, 8 years old.
60. same do do do 9 do
61. Philander Kelsey, Blendon, brood mare, 3 years old.
62. Moses Seymore, Groveport, Franklin county, stallion Bonnie Scotland, 5 years old.
63. James Alexander, Circleville, Pickaway county, stallion Whitehall, 4 years old.
64. Chester Lamb, Welchfield, stallion Ben Butler, 5 years old.
65. same do do Young Champion, 2 years old.
66. George Bruce, do do Champion Searcher, Jr., 5 years old.
67. G. W. Kent, Marysville, brood mare, Searcher Molly, 7 years old.
68. Syms McCan, Darby Creek, Madison county, gelding Trustee, 5 years old.
69. L. S. & C. S. Crim, Galion, brood mare Flora, 5 years old.
69. S. A. Campbell, Circleville, Pickaway county, stallion Benicia Boy, 7 years old.
71. Dr. Goodale, Columbus, Franklin county, gelding, 4 years old.
72. V. S. Decker, Lockbourne, Franklin county, brood mare, 3 years old.

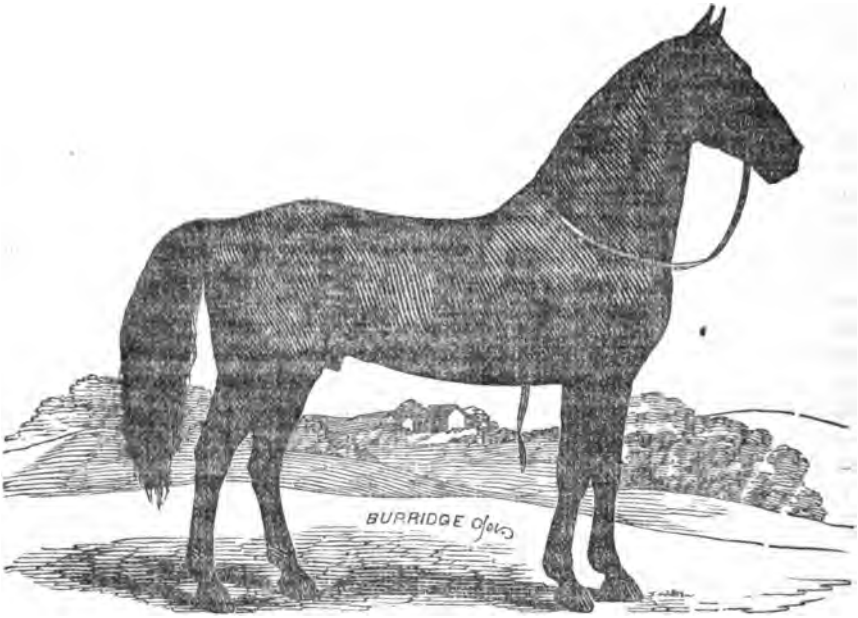
AWARDS ON HORSES FOR GENERAL PURPOSES.

Best Stallion, 4 years old and over, Captain Fairfield, L. S. & C. S. Crim, Galion	$50
2d best do do Benicia Boy, S. A. Campbell, Circleville	25
Best Stallion, 3 years old and under 4, Bellfounder, J. C. Noe, Reynoldsburg	25
2d best do do John Penn, Dublin	15
Best Stallion, 2 years old and under 3, Proud Cadmus, Tho. S. Jack, Lebanon	20
2d best do do American Boy, B. D. Anderson, Xenia	10
Best Stallion, 1 year old and under 2, Toby, James McDonald, Carroll	15
2d best do do W. G. Foster, John M. Morgan, Grove City	10
Best sucking Stallion colt, John M. Morgan, Grove City	10
2d best do W. T. Decker, Groveport	5
Best Brood Mare, 4 years old and over, Bird, W. T. Decker, Groveport	30
2d best do do J. P. Stockton, Columbus	20
Best Brood Mare, 3 years old and under 4, Flora, B. D. Anderson, Xenia	20
2d best do do Geney, G. W. Williams, Columbus	15

Best Brood Mare, 2 years old and under 3,	Flora Temple, Chas. Stewart, Alexandria.	$15
2d best do do	Flora, Philip C. Tussing, Madison Tp	10
Best Filley, 1 year old and under 2,	John Decker, Jr., Lockbourne	10
2d best do do	Nelly, John Tyler, Columbus	5
Best sucking Mare Colt,	Marshall Guy, Darby Creek	10
2d best do	S. C. Preston, Grove City	5

Awarding Committee.—CHAS. FULLINGTON, JOHN ENOCH, JR., ZACH. ELKIN.

CAPTAIN FAIRFIELD is a dark bay horse, 16¼ hands high weighs 1,350 pounds, and is of much substance, great stamina and fine style. He was bred in Fairfield county, Ohio; was foaled May 20th, 1857; was sired by Young Sir Thomas; dam by Marylander. Young Sir Thomas sired by the Woodyear Sir Thomas; he by Young Diomede; he by imported Diomede. Captain Fairfield is a half brother to the trotting horse known as Captain Fisher, now owned in San Francisco, California, and formerly of Lancaster, Ohio; and also half brother to the roan mare known as Moll Brooks, owned in Cincinnati, and formerly of Lancaster, Ohio.



CAPTAIN FAIRFIELD.

PROUD CADMUS

Is a beautiful bay, with a little white on each hind foot, 16¼ hands high, two years old last May. Proud Cadmus was sired by Major General Cadmus, he by Flying Cadmus, he by Jarvis Cadmus, he by Beech's Cadmus, he by American Eclipse, his dam by Flying Cadmus, her dam by Beech's Cadmus.

ENTRIES OF DRAFT HORSES.

1. J. A. Johnson, Urbana, Champaign co., mare, Lady Powell, 6 yrs. old.
2. M. P. Rice, Unionville, Union co., stallion, Timothy, 5 yrs. old.
3. E. Bailey, Cardington, Morrow co., stallion, Sam. Norman, 3 yrs. old.
4. George St. Clair, Milford Centre, Union co., mare, 4 yrs. old.
5. J. T. Francis, Columbus, Franklin co., stallion, Gray Eagle Norman, 4 yrs. old.
6. Thomas Jones, Darby Creek, Madison co., stallion, Normandy, 15 yrs. old.
7. same " " mare, Norma, 13 yrs. old.
8. same " " colt, sucking mare.
9. Martin Hiller, Marion, Marion co., stallion, Gen. Grant, 2 yrs. old.
10. same " mare, Miss Grant, 2 yrs. old.
11. William Wylie, Big Island, Marion co., stallion, Young John C. Heenan, 3 yrs. old.
12. J. W. McCann, Norwich township, Franklin co., stallion, Bill, 5 yrs old.
13. D. L. Holton, Blendon township, Franklin co , mare, 9 yrs. old.
14. Horace Allen, Delaware, Delaware co., colt, sucking stallion colt, 6 mos. old.
15. James Gardner, Mt. Gilead, Morrow co., stallion, George, 3 yrs. old.
16. Francis Jones, Brown township, Morrow co., stallion, Ohio Frenchman, 4 yrs. old.
17. George St. Clair, Milford Centre, Union co., colt, sucking mare, 4 mos. old.
18. Seth Billington, Kilbourn, Delaware co., stallion, Norman, 4 yrs. old.
19. James Thomas, Columbus, Franklin co., stallion, Young Turk, 2 yrs. old.
20. E. E. Burt, Alton, Franklin co., mare, Jenny, 7 yrs. old.
21. Philip Place, Delaware, Delaware co., stallion, Norman, 11 yrs. old.
22. J. W. McCann, Hilliard Station, Franklin co., colt, Bill, 5 mos. old.

AWARDS ON DRAFT HORSES.

Best stallion, 4 yrs. old and over, Norman, Philip Place, Delaware	$50
2d best stallion, 4 yrs. old and over, Normandy, Thomas Jones, Darby Creek	25
Best stallion, 3 yrs. old and under 4, Young John C. Heenan, Wm. Wylie, Big Island	25
2d best stallion, 3 yrs. old and under 4, George, James Gardner, Mt. Gilead	15
Best stallion, 2 yrs. old and under 3, Gen. Grant, Martin Hiller, Marion	15
2d best stallion, 2 yrs. old and under 3, Young Turk, James Thomas, Columbus	10
Best sucking stallion colt, Bill, J. W. McCann, Hilliard Station	10
2d best sucking stallion colt, Horace Allen, Delaware	5
Best brood mare, 4 yrs. old and over, George St. Clair, Milford Centre	30
2d best brood mare, 5 yrs. old and over, Jenny, E. E. Burt, Alton	20
Best brood mare, 2 yrs. old and under 3, Miss Grant, Martin Hiller, Marion	15
Best sucking mare colt, Thomas Jones, Darby Creek	10
2d best sucking mare colt, Geo. St. Clair, Milford Centre	5

Awarding Committee.—DANIEL BOYD, DANIEL A. UPSON, JESSE R. MARSHALL, WM H. PALMER.

ENTRIES OF MATCHED HORSES AND MARES.

1. A. B. Witter, Milford Centre, Union co., pair matched horses, 5 yrs. old.
2. J. A. Johnson, Urbana, Champaign co., mare, Rachel, for light harness.
3. R. A. Fordsman, Circleville, Pickaway co., gelding, for saddle.
4. T. W. Talmadge, Columbus, Franklin co., pair coach horses.
5. T. H. Butler, " " "
6. same " " gelding for light harness.
7. same ' " for saddle.

8. D. Green, Johnstown, Licking co., pair of mares for light harness.
9. Jasper Cummings, Johnstown, Licking co., gelding, for light harness, 6 yrs. old.
10. Archibald Ellison, Cincinnati, Hamilton co., pair of matched roadsters (geldings), 6 yrs. old.
11. J. P. Stockton, Columbus, Franklin co., gelding, for saddle, 4 yrs. old.
12. same " " " 6 yrs. old.
13. same " " mare, " 4 yrs. old.
14. R. M. Denig, " " mare, "
15. David Williams, " " mare, for light harness.
16. John M. Morgan, Grove City, Franklin co., horse, for saddle.
17. J. Pennell, Columbus, Franklin co., gelding, for light harness.
18. D. R. Lawrence, " " saddle.
19. Robert Lewis, Dublin, Franklin co., pair matched stallions, 6 yrs. old.
20. same " " matched mares.
21. James Lindsey, Columbus, Franklin co., gelding, Bird, for saddle, 5 yrs. old.
22. O. T. Gunning, Dundas, Vinton, gelding, Ben., 5 yrs. old.
23. Giles Hobart, Granville, Licking co., pair roadsters, Doll and Nell.
24. same " " mare, Doll, for light harness, 8 yrs. old.
25. T. T. Kilbury, Pleasant Valley, Madison co. pair (Jim and Bill) matched horses, 5 yrs. old.
26. James C. Ryant, Constantia, Delaware co., pair (Trumpet and Queen Anne) matched roadsters (mares), 6 yrs. old.
27. John Cunningham, Granville, Licking co., horse, Patchen, for light harness, 5 yrs. old.
28. J. W. McCann, Norwich township, Franklin co., gelding, for saddle or harness, 5 yrs. old.
29. Nicholas Van Loon, Worthington, Franklin co., mare, Lady West, for saddle, 6 yrs. old.
30. David Auld, Columbus, Franklin co., gelding, Abe Lincoln, for saddle, 4 yrs. old.
31. Geo. Donaldson, " " " Eagle, for light harness, 5 yrs. old.
32. E. R. Woodrow, " " " Bonnie Scotland, for light harness, 5 yrs. old.
33. W. H. Domigan, Columbus, Franklin co., mare, Flora, 9 yrs. old.
34. Isaac Powell, Hartland, Huron co., mare, Kitty Printon, 6 yrs. old.
35. J. L. Tyler, Alexandria, ——— co., pair (Billy Sherman and Capt. Grant) matched horses, 4 yrs. old.
36. John Thompson, Delaware, Delaware co., gelding, Chestnut, 7 yrs. old.
37. Wm. M. Ramsay, Hopedale, Harrison co., stallion, Hiatoga, 6 yrs. old.
38. Chas. Stewart, Alexandria, ——— co., gelding, Geo. Patchin, 8 yrs. old.
39. Dr. W. Estep, Lloydsville, ——— co., gelding, John, 7 yrs. old.
40. James Lough, Columbus, Franklin co., pair carriage horses, 5 and 6 yrs. old.
41. same " " matched roadsters.
42. Saml. E. Ogden, " " gelding, Wayner, light harness, 8 yrs. old.
43. same " " " Old Barney, light harness.
44. S. Hankins, " " mare, Nelly, light harness, 5 yrs. old.
45. Wm. Runkle, West Liberty, Logan co., gelding, Ben., for saddle, 8 yrs. old.
46. J. E. Smith, " " " Charles, light harness, 5 yrs. old.
47. G. W. Davidson, London, Madison county, mare, Lorena, for saddle, 8 yrs. old.
48. James Thomas, Columbus, Franklin co., gelding, Dick, light harness, 4 yrs. old.
49. John Swisher, Groveport, Franklin co., horse, Bob Ridley, for saddle, 5 yrs. old.
50. J. H. Ackerson, Centre Village, Delaware co., pair matched roadsters, 3 yrs. old.
51. same " " mare, Dolly, saddle, 7 yrs. old.

52. H. Stotts, Lima, pair carriage mairs, 6 yrs. old.
52¼. Ezra Madden, Fultonham, gelding, Bill, light harness, 5 yrs. old.
53. John G. Neil, Columbus, Franklin co., mare, Bessie, light harness, 7 yrs. old.
54. David Parry, “ “ gelding, light harness.
55. James Baker, Johnstown, mare, Filley, for saddle, 6 yrs. old.
56 same “ stallion, George, for saddle, 7 yrs. old.
57. Geo. Stephens, Darby Creek, Madison co., pair matched roadsters, 10 and 6 yrs. old.
58. same “ “ gelding, Harris, light harness, 6 yrs. old.
59. same “ “ mare, Lucy, light harness, 6 yrs. old.
60. Samuel McIlhany, Columbus, Franklin co., mare, Julia, light harness, 5 yrs. old.
61. S. A. Campbell, Circleville, Pickaway co., gelding, David Crockett, light harness.
62. N. Van Loon, Worthington, Franklin co., stallion, Yankee Tom, light harness, 6 yrs. old.
63. William Clark, Frankfort, O., pair matched roadsters, mares, 6 yrs. old.
64. J. C. Auld, Columbus, Franklin co., gelding, light harness, 4 yrs. old.
65 Emmett & Bro., Chillicothe, Ross co., pair matched roadsters, 6 yrs. old.
66. same “ “ gelding, Black Racer, 6 yrs. old.
68. D. Parry, Columbus, Franklin co., gelding, Clay, for light harness, 3 yrs. old.
69. J. D. Miller, Lockbourne, “ “ Wagner, for light harness, 5 yrs. old.
70. Wm. Lamb, Columbus, “ mare, Fanny, for light harness, 4 yrs. old.
71. S. N. Field, “ “ pair matched roadsters, 10 yrs. old.
72. Jno. Bagshaw, “ “ gelding, Charles, light harness.
73. R. Perrine, Patterson's Mill, mare, for saddle.
74. B. W. Kent, Marion, pair matched roadsters for harness, 4 yrs. old.
75. James Alexander, Circleville, Pickaway co., gelding, Fred, 4 yrs. old.
76. Newton Wells, Mentor, Lake co., gelding, matched coach, 5 yrs. old.
77. M. C. Radebaugh, Columbus, Franklin co., gelding, light harness, 5 yrs. old.
78. J. C. McDonald, Blendon, gelding, Frank, light harness, 7 yrs. old.
79. J. R Flowers, Columbus, Franklin co., pair matched mares, 4 yrs. old.
80. Mrs. Baringer, “ “ “ roadsters, 5 and 11 yrs. old.
81. Geo. Donaldson, “ “ gelding, Tom, 5 yrs. old.
82. J. S. Rarey, Groveport, “ pair matched carriage, 7 yrs. old.
83. Wm. Lamb, Columbus, “ gelding, Billy, light harness, 5 yrs. old.
84. J. W. Cox, “ “ filley, Fancy, light harness, 4 yrs. old.
85. John Evans, “ “ mare, Morgan. 4 yrs. old.
86. Jas. Naughton, “ “ pair matched horses, 4 yrs. old.
87. J. S. Abernethy, Pickaway co., pair mares for light harness, 4 yrs. old.
Lamb & Weston, Welchfield, pair matched roadsters (entry in Com. book,)

AWARDS ON MATCHED HORSES AND MARES.

Best pair of coach horses, T. W. Talmadge, Columbus	$30
2d best pair of coach horses, T. H. Butler, “	15
Best matched roadsters, Archibald Ellison, Cincinnati	30
2d best matched roadsters, Lamb & Weston, Welchfield	15

GELDINGS AND MARES FOR LIGHT HARNESS.

Best gelding for light harness, Carles Stewart, Alexandria	$30
2d best gelding for light harness, James Alexander, Circleville	15
Best mare for light harness, J. A. Johnson, Urbana	30
2d best mare for light harness, Geo. Stephens, Darby Creek	15
Best horse or gelding for saddle, J. P. Stockton, Columbus	20
2d best horse or gelding for saddle, James Alexander, Circleville	10

Best mare for saddle, G. W. Davidson, Columbus................................ $20
2d best mare for saddle, J. P. Stockton, Columbus.................................. 10

Awarding Committee.—CHAS. FULLINGTON, J. W. SHINN, JOHN P. HILLARD.

ENTRIES OF TROTTERS AND SWEEPSTAKES ON TROTTERS—OPEN TO ALL

1. John M. Morgan, Grove City, Franklin county, horse, Blanco, (racking) 6 years old.
2. E. M. Downs, Columbus, " horse, Young America, 6 years old.
3. John Bagshaw, " " gelding, Charlie, 7 years old
4. Martin Hiller, Marion, stallion, General Grant, 2 years old.
5. same " mare, Miss Grant, 2 years old.
6. M. L. Lewis, Worthington, Franklin county, gelding, 8 years old.
7. Dr. W. M. Estep, Lloydsville, " gelding, General Custar, 7 years old.
8. Moses Seymore, Madison tp. " stallion, Young Barney, 5 "
9. W. C. Brown, Columbus, " mare, 6 years old.
10. same " " gelding, 6 years old.
11. W. M. Long, Xenia, Greene county, stallion, Blucher, 7 "
12. same " " stallion, Harry Clay.
13. Jas. Beers, Worthington, Franklin county, mare, Fanny.
14. John Cunningham, Granville, gelding, Patchin, 5 years old.
15. Dr. Downs, Columbus, Franklin county, gelding, Jim (pacer).
16. B. W. Kent, Marion, gelding (trotter), 4 years old.
17. T. T. Kilbury, Pleasant Valley, mare, Matt, 6 years old.
18. Theo. Comstock, Columbus, Franklin county, mare, Lady.
19. same " " mare, Fanny.
20. Jas. Buckingham, Zanesville, Muskingum county, stallion, Pretty Boy.
21. Cherry & Engard, Delaware, Delaware county, stallion, Non Such, 11 years old.
22. Jas. Lindsey, Columbus, Franklin county, gelding, Bird (pacer).
23. John Cunningham, Granville, gelding, Patchin, 5 years old.
24. Jas. Beers, Worthington, Franklin county, mare, Fanny.
25. J. W. Connelly, Columbus, Franklin county, stallion, Henry Brown.
26. N. Van Loon, Worthington, Franklin county, mare, Bellfounder, 7 years old.
27. G. W. Fitzwater, West Philadelphia, Pa., horse.
28. R. Perrine, Patterson's Mills, Pa., mare (racking); 5 years old.
29. M. D. Brooke, Newark, Licking county, horse (pacing), 8 years old.
30. Philander Kelsey, Blendon, mare.
31. Robt. Lewis, Dublin, Franklin county, mare, Kate Lewis, 4 yeas old.

AWARDS ON TROTTERS, ETC.

Best and fastest trotting stallion, Searcher, J. Buckingham Zanesville $50
" " " mare, Matt, T. T. Kilbury, Pleasant Valley............... 40
" " " gelding, M. L. Lewis, Worthington 25

SWEEPSTAKES ON TROTTERS.

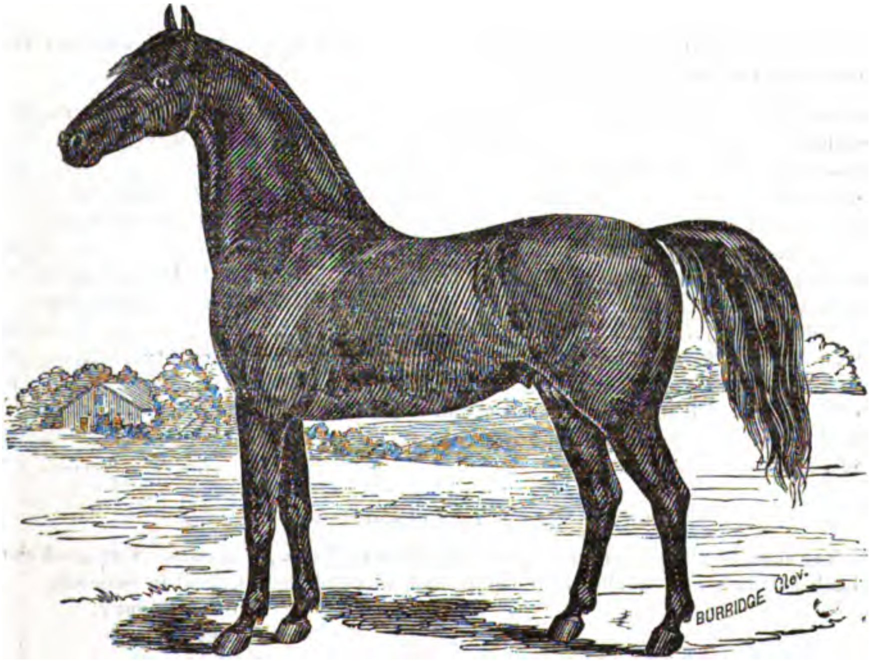
Best and fastest trotting horse, mare or gelding, Henry Brown, J. W. Connelly, Columbus $100

Best and fastest pacing or racking horse, mare or gelding, S. A. Douglas, M. D. Brooks, Newark... 20

Awarding Committee.—JNO. REBER, F. DUNLEVY, STOUGHTON BLISS, E. M. BENNETT, J. O. B. RENICK.

ENTRIES ON SWEEPSTAKES ON HORSES AND COLTS.

1. J. P. Stockton, Columbus, Franklin county, mare, Polly, 8 years old.
2 A. W. Dolson, “ “ stallion, Woodburn Scythian, 6 yrs. old.
3. Thos. Jones, Darby Creek, Madison county, stallion, Normandy, and 5 colts.
4. same “ “ stallion, Sir Tatton, 4 years old.
5. John R. Northrup, Dublin, Franklin county, mare, My Susie, 6 years old.
6. Wm. Wylie, Big Island, Marion county, stallion, Young Flying Cloud, 2 years old.
7. same “ “ stallion, Young John C. Henan, 3 “
8. Nicholas Van Loon, Worthington, Franklin county, gelding, Yankee Tom, 6 yrs. old.
9. Jas. T. Piercy, Groveport, Franklin county, mare, Polly, 4 years old.
10. V. M. Ford, Center Village, Delaware county, mare, Jane, 7 “
11. Reber & Kutz, Lancaster, Fairfield county, stallion, Revenge, 7 years old.
12. same “ “ stallion, Young Fashion.
13. W. M. Long, Xenia, Greene county, stallion, Blucher.
14. E A. Fuller, Worthington, Franklin county, stallion, Tom Hyer.
15. J. L. Stephens, Columbus, “ stallion, Sorrell Bashaw.
16. L. Merchant, Newark, Licking county, stallion, Champion Searcher.
17. S. A. Campbell, Circleville, Pickaway county, stallion, Benicia Boy.
18. Lamb & Weston, Welchfield, stallion, Searcher, and 5 colts.
19. S. A. Campbell, Circleville, Pickaway county, stallion, Benicia Boy, 7 years old.
20. D. B. Anderson, Xenia, Greene county, stallion, Ben Butler, 6 years old.
21. Leonard & Smith, Cincinnati, Hamilton county, stallion, Ring Master, 4 years old.
22. L. S. & C. S. Crim, Galion, stallion, Capt. Fairfield, 8 years old.
23. same “ mare, Flora, 5 years old.


BURRIDGE Clev.

SEARCHER—PROPERTY OF LAMB & WESTON.

AWARDS ON SWEEPSTAKES ON HORSES AND COLTS.

Best stallion of any age or breed, Ben Butler, B. D. Anderson, Xenia	$100
" mare of any age or breed, Young Fashion, Reber & Kutz, Lancaster	50
" 5 colts, Lamb & Weston, Welchfield	40
2d best 5 colts, Thos. Jones, Darby Creek	20
Sire of best 5 colts, Searcher, Lamb & Weston, Welchfield	Silver Medal
Sire of 2d best 5 colts, Normandy, Thos. Jones, Darby Creek	Silver Medal

Awarding Committee.—W. B. Brooks, Wm. A. Neil, Jr., T. S. O'Bannon.

JACKS AND MULES.

In this Class there were 20 entries. The awards were as follows:

Best Jack, 3 years old and over, Manassas, Isaac Powell, Hartland	$25
2d best Jack, 2 years old and under 3, Midnight, Wm. McDonald, Columbus	15
Best Jack, 1 year old and under 2, Bill Fisher, Wm. Cleggett, Xenia	5
Best Jennet, 3 years old and over, Isaac Powell, Hartland	15
Best Jennet, 1 year old and under 2 " "	5
Best pair of mules, 2 years old and over, Molly and Polly, J. W. McCann, Hilliard Station	10

Awarding Committees.—J. G. Troutman, T. M. Kimball, W. W. Entrekin.

SHEEP.

MERINOS.

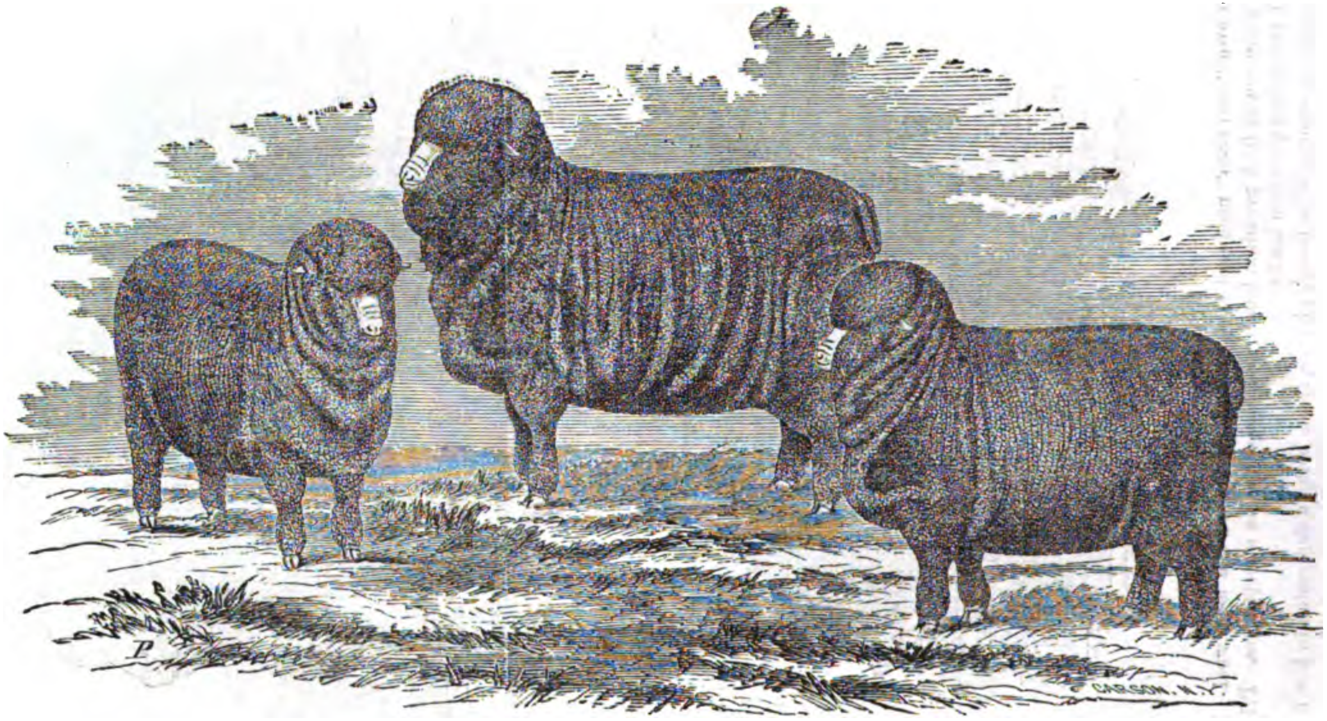
In this Class there were 93 entries, comprising 200 head. The following are the awards and report of the committee:

Best Buck, 2 years old and over, Hannibal, Perrine & McNall, Patterson's Mills, Pa.	$30
2d best " " " Jack, L. M. Bingham, West Cornwall, Vt.	15
Best Buck, under 2 years old, Eureka, Wright & Delano, Mt. Vernon	25
2d best " " Black Prince, Bingham & Eels, West Cornwall, Vt.	15
Best pen of 5 ewes, 2 years old and over, Carey, Boyer & Twitchell, Carey, Wyandot county	30
2d best pen of 5 ewes, 2 years old and over, J. F. Hoz, West Carlisle, Coshocton Co.	15
Best pen of 5 ewes, under 2 years old, Carey, Boyer, Anderson & Starr, Carey, Wyandot county	30
2d best pen of 5 ewes, Carey, Boyer & Twitchell, Carey Wyandot county	15
Best buck lamb, Robt. Perrine, Patterson's Mills, Pa.	10
2d best " T. S. Humrickhouse, Coshocton	5
Best pen of 5 ewe lambs, Carey, Boyer & Starr, Carey, Wyandot county	15
2d best pen of 5 ewe lambs " " "	8

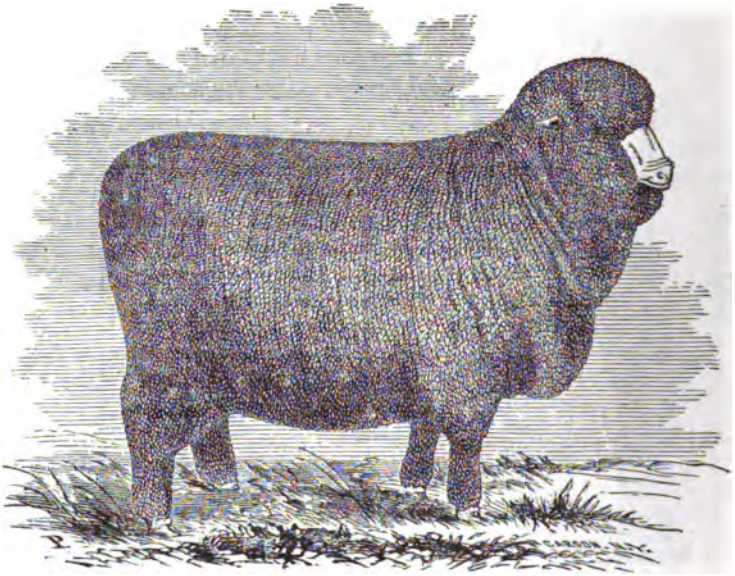
REPORT OF COMMITTEE.

The show of rams was never before equaled in the State; also ewes. Very good ewe lambs, never before equaled in this State, and, we think, hard to beat in Vermont.

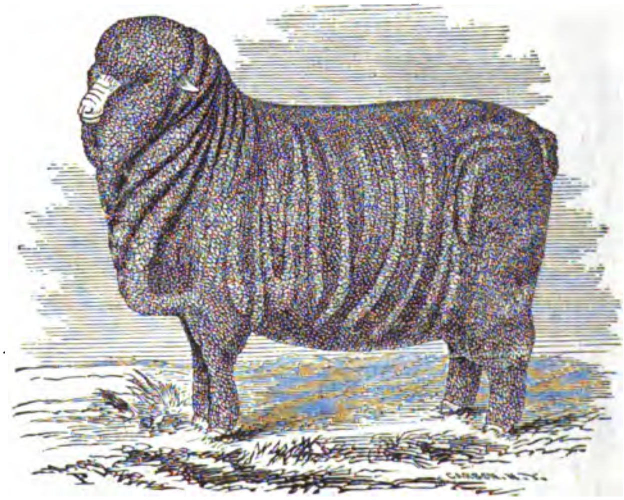
Thomas Gorbey,
D. Pettit,
Augustine Converse,
A. W. McFarland,
Awarding Committee.



SILVER FACE. **MISS DEAN.** **PRICELESS.**



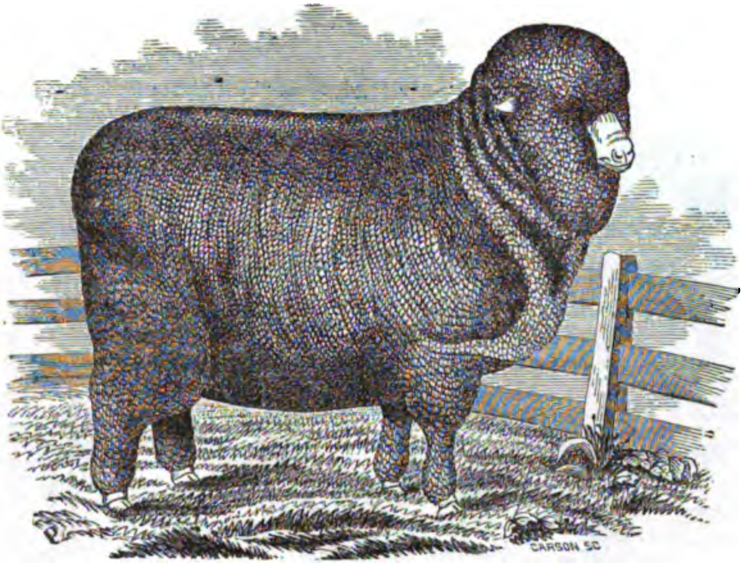
RED EARS.



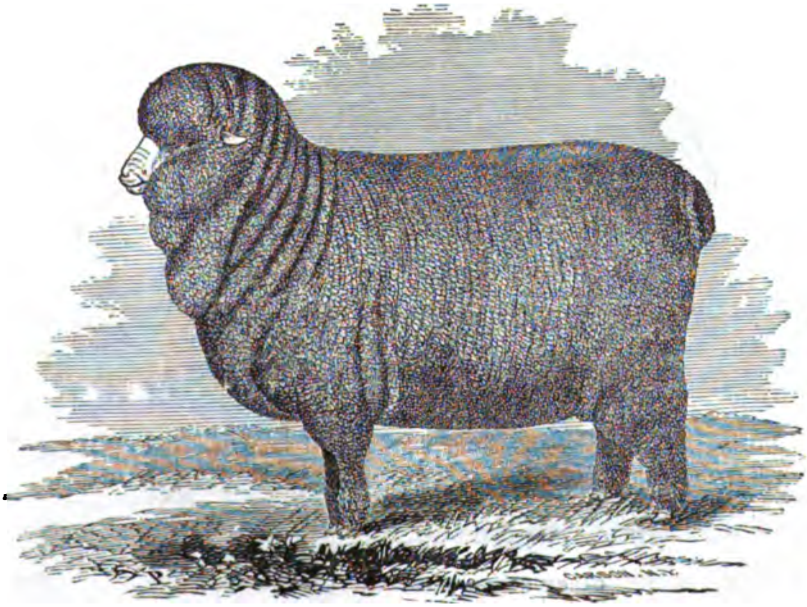
MISS DEAN.

The ewe "Red Ears" produced the fleece that cleansed the most wool. Miss Dean was in the pen of first premium lambs, and also drew the sweepstakes. Priceless was one of the second premium lambs.

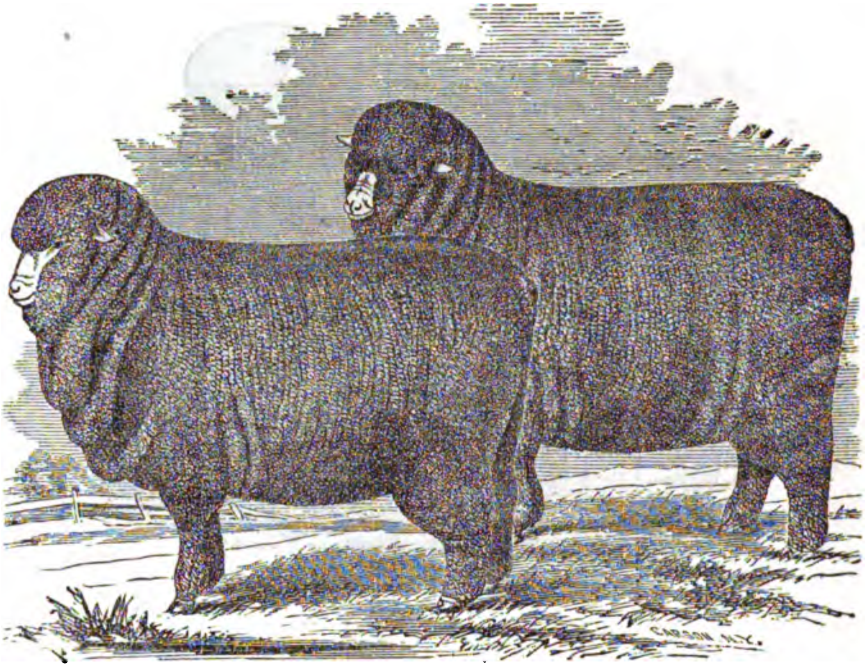
There is an error in Miss Dean's picture, there being a depression in her front, when in fact it comes out almost as far as the end of her nose nearly half way down to her brisket; the single picture being better than the one in the group.



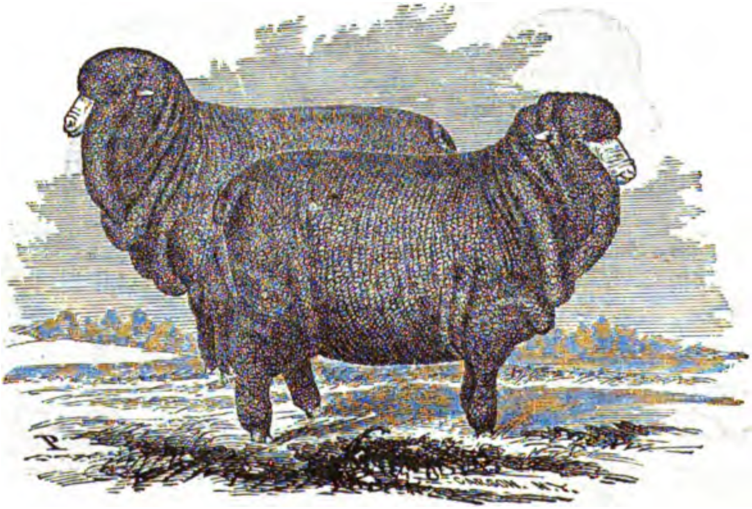
I. J. ANDERSON'S AGED EWE.



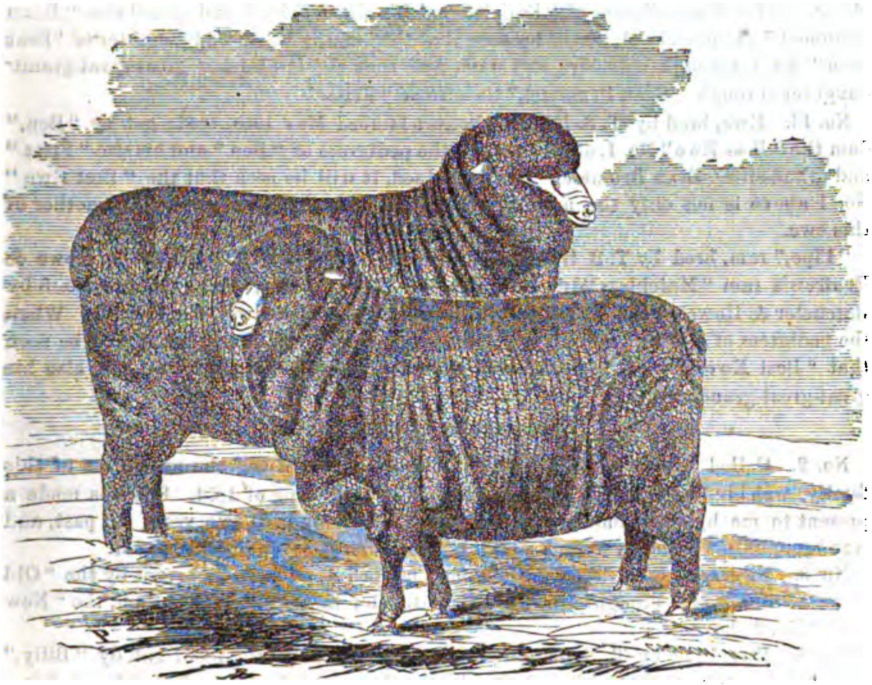
I. J. ADERSON'S BLACK ROSE.



CAREY, BOYER & TWITCHELL'S ONE YEAR EWES.



CAREY BOYER & TWITCHELL'S EWE TEGS.



CAREY, BOYER & TWITCHELL'S AGED EWES.

PEDIGREES OF SHEEP.

Amongst the ewes exhibited by me, are three old ewes (two of them bred by Edwin Hammond, of Middlebury, Vermont, and the other bred by myself from a Hammond ewe,) from which all the others, both ewes and rams, are descended.

My object is to show the three families as bred by myself, with the old ewes at their head. And, to explain the whole, and their relation to each other, full pedigrees of them all are given below. The numbers used are those of my private register:

FIRST FAMILY.

No. 1. Called by me when first purchased, "Best Ewe," the ancestress of this family, was bred by Edwin Hammond, lambed in the spring of 1852, and now, therefore, thirteen years old past; she was bought from Mr. Hammond in September, 1854, and was one of four brought out by Wm. Batchelor in that month. She was in the first premium pen of ewes over two years old, at the State Fair at Newark in Oct. 1854.

No. 5. Ewe, bred by T. S. Humrickhouse; lambed March 20, 1860; got by Batchelor & Howe's "Old Wrinkly;" dam "Best Ewe," No. 1 above.

No. 11. Ewe, bred by T. S. Humrickhouse; lambed April 22d, 1862; got by "Fritz;" dam No. 5, by Batchelor & Howe's "Old Wrinkly;" gr. dam "Best Ewe," No. 1 above. When the pedigrees of "Fritz" and his sire "Beau Brummel" are examined, it will be seen that this ewe is the grand-daughter in the female line, and the great-grand-daughter in the male line of "Best Ewe," No. 1 above.

No. 13. Ewe, bred by T. S. Humrickhouse; lambed March 29, 1863; got by "Yorick;" dam, ewe No. 5 by Batchelor & Howe's "Old Wrinkly;" gr. dam "Best Ewe," No. 1

above. When the pedigrees of "Yorick" and his sire "Fritz" and grand-sire "Beau Brummel" are examined, it will be seen that this ewe is the grand-daughter of "Best Ewe" No. 1, through both sire and dam, and that she is also her great-great-grand-daughter through "Beau Brummel," the sire of "Fritz."

No. 16. Ewe, bred by T. S. Humrickhouse; lambed May 12th, 1863; got by "Ben," dam the "Best Ewe" No. 1, above. When the pedigrees of "Ben" and his sire "Fritz" and grand-sire "Beau Brummel" are examined, it will be seen that the "Best Ewe" No. 1 above is not only the mother, but she is also the great-great-grandmother of this ewe.

"Pipe," ram, bred by T. S. Humrickhouse, lambed April 17th, 1865; got by Howe & Renfrew's ram "Matchless 2d;" dam ewe No. 11 by "Fritz;" gr. dam ewe No. 5 by Batchelor & Howe's "Old Wrinkly;" gr. gr. dam, the "Best Ewe" No. 1 above. When the pedigrees of "Fritz" and his sire "Beau Brummel" are examined, it will be seen that "Best Ewe" No. 1, besides being the great-grandmother of "Pipe," is also his great-great-grandmother.

SECOND FAMILY.

No. 2. Called by me when I first got her, the "New Ewe," the ancestress of this family, was bred by Edwin Hammond, lambed in the spring of 1854. She was made a present to me by Mr. Hammond in October, 1856, being then two years old past, and was brought out to me by Wm. Batchelor. She is now eleven years old past.

No. 3. Ewe, bred by T. S. Humrickhouse, lambed April 20th, 1857; got by the "Old Remile Stock Ram," brought out by Wm. Batchelor in October, 1856; dam, the "New Ewe" No. 2 above.

No. 8. Ewe, bred by T. S. Humrickhouse, lambed May 7th, 1862; got by "Billy," dam Ewe No. 3 by the "Old Remile Stock Ram," gr. dam the "New Ewe" No. 2 above.

No. 18. Ewe, bred by T. S. Humrickhouse, lambed April 18th, 1863; got by Batchelor & Howe's "Old Greasy;" dam, the ewe I sold to James Dryden, of Washington county, Pa., by Batchelor & Howe's "Old Greasy;" gr. dam, the "New Ewe" No. 2 above. It is seen that "Old Greasy" got this ewe on his own daughter, and is, therefore, at once her sire and grandsire.

No. 22. Ewe, bred by T. S. Humrickhouse, lambed March 26th, 1865; got by "Favorite;" dam, the Ewe No. 3 by the "Old Remile Stock Ram;" gr. dam, the "New Ewe" No. 2 above.

No. 25. Ewe, bred by T. S. Humrickhouse, lambed April 6th, 1865, got by "Dan;" dam, No. 8 by "Billy; gr. dam, No. 3 by the "Old Remile Stock Ram; gr. gr. dam, the "New Ewe," No. 2 above. When the pedigree of "Dan" is examined, it will be seen that this ewe is the grand-daughter as well as the great-grand-daughter of the "New Ewe" No. 2 above.

"Dan," ram, bred by T. S. Humrickhouse, lambed March 31st, 1863, got by "Yorick;" dam, the "New Ewe" No. 2 above.

"Tony," ram, bred by T. S. Humrickhouse, lambed April 14th, 1864, got by "Yorick;" dam, the Ewe No. 8 by "Billy;" gr. dam, No. 3 by the "Old Remile Stock Ram;" gr. gr. dam, the "New Ewe" No. 2 above.

"Dan" and "Tony," through their sire "Yorick" and his sire "Fritz," unite the blood of the First and Third with this the Second Family; and "Tony" possesses an additional amount of the blood of the Third Family through "Billy," the sire of his dam.

THIRD FAMILY.

No. 4. "Wrinkle Neck Ewe," the ancestress of this family, bred by T. S. Humrickhouse, lambed April 21st, 1858, got by Batchelor & Howe's "Old Wrinkly;" dam, the

"Big Ewe," one of three purchased for me from Edwin Hammond, and brought out in a lot with twenty-one others bought at the same time from Mr. Hammond, by William Batchelor, in September, 1852.

No. 12. Ewe "Little Wrinkly," bred by T. S. Humrickhouse, lambed April 12th, 1862, got by "Fritz" or "Billy;" dam, "Wrinkle Neck Ewe," No. 4 above. Whether got by "Fritz" or "Billy," this ewe is at the same time the daughter and grand-daughter of her own mother.

No. 17. Ewe, bred by T. S. Humrickhouse, lambed April 18th, 1863, got by Howe & Renfrew's (better known as Batchelor & Howe's) "Old Greasy;" dam, the "Wrinkle Neck Ewe," No. 4 above.

No. 27. Ewe, bred by T. S. Humrickhouse, lambed April 15th, 1865, got by "Son of Yorick;" dam, No. 17 by Batchelor & Howe's "Old Greasy;" grand dam, the "Wrinkle Neck Ewe," No. 4 above. It will be seen that this ewe, besides being the grand-daughter of the "Wrinkle Neck Ewe," No. 4 above, in the direct female line, is her great-grand-daughter through "Son of Yorick," and her great-great-grand-daughter through "Fritz," the sire of "Yorick."

"Chibouk," ram, bred by T. S. Humrickhouse, lambed March 29th, 1865, got by Howe & Renfrew's "Matchless 2d;" dam, the ewe "Little Wrinkly" No. 12 by "Fritz" or "Billy;" gr. dam, the Wrinkle Neck Ewe," No. 4 above.

"Meerschaum," ram, bred by T. S. Humrickhouse, lambed April 5th, 1865, got by Howe & Renfrew's ram "General Humphreys;" dam, the "Wrinkle Neck Ewe," No. 4 above.

In breeding my three families I have entirely excluded two ewes and their increase, originally obtained from Mr. Hammond, and one from Stephen Atwood.

All the sheep, whose pedigrees are hereinbefore given, are on exhibition under one or other of the different entries made by me.

To complete the pedigrees I follow with the pedigrees and history of all the rams named in them, beginning with those bred by myself.

"Fritz" Ram, bred by T. S. Humrickhouse, lambed March 23, 1861, got by "Beau Brummels," dam the "Wrinkle Neck Ewe," No. 4, above.

"Fritz" was used by me when a lamb, and proved a first class sire ram. He was sold, still a lamb, in March, 1862, before any of his lambs were dropped, to John Flemming, of Muskingum county, who afterwards removed to Iowa and took him with him.

"Beau Brummel" Ram, the sire of "Fritz," was bred by T. S. Humrickhouse, lambed April 2, 1858, got by "Ebony," dam the "Best Ewe," No. 1, above.

"Beau Brummel" was given in exchange to W. D. Peirce for his imported cow "Roan Lady."

"Yorick" Ram, bred by T. S. Humrickhouse, lambed April 6, 1862, get by "Fritz," dam "Best Ewe," No. 1, above.

"Yorick" was used when a lamb, and also when a yearling; and was sold to Robert Leevers, of Oskaloosa, Iowa, in November, 1863, for $500.

"Ben" Ram, bred by T. S. Humrickhouse, lambed April 2, 1862, got by "Fritz," dam by "New Ewe," No. 2, above.

"Ben" was sold in September, 1864, to R. Leevers, of Oskaloosa, Iowa, for $250.

"Billy" Ram, the sire of Ewe No. 8, was bred by T. S. Humrickhouse, lambed March 20, 1860, got by the "Delano Ram," dam the "Wrinkle Neck Ewe," No. 4, above.

"Billy" died in 1863.

"Favorite" Ram, bred by T. S. Humrickhouse, lambed March 28, 1864, got by "Ben" dam Ewe No. 5, by Batchelor & Howe's "Old Wrinkley," grand dam "Best Ewe," No. 1, above.

"Son of Yorick" Ram, bred by T. S. Humrickhouse, lambed April 2, 1864, got by "Yorick," dam the ewe "Little Wrinkley," No. 12, by "Fritz" or "Billy," grand dam "Wrinkle Neck Ewe," No. 4, above.

"Ebony" Ram, the sire of "Beau Brummel," was used by Stephen Atwood, of Watertown, Connecticut, lambed in the spring of 1852, and was bought from him by me, and brought out in May, 1854, along with a yearling ewe.

"The Remile Stock Ram" was bred by Wm. R. Remile, of Middlebury, Vt., lambed in the spring of 1852. After being extensively used in Vermont he was bought, along with the lamb afterwards called "Old Greasy," from Mr. Remile by Wm. Batchelor, and brought out in October, 1856.

"Old Greasy" Ram, known as Batchelor & Howe's, and afterwards Howe & Renfrew's "Old Greasy," was bred by Wm. R. Remile, lambed in the spring of 1856, and was bought and brought out by Mr. Batchelor with the preceding.

"Old Wrinkley" Ram, known as Batchelor & Howe's, and afterwards Howe & Renfrew's "Old Wrinkley," was bred by Edwin Hammond, lambed in the spring of 1856, and was bought with two others, all lambs, from Mr. Hammond by Wm. Batchelor, and brought out in October, 1856, with the two preceding.

The "Delano Ram," bred by Edwin Hammond, lambed in the spring of 1856, was bought and brought out by Wm. Batchelor, with the preceding, in October, 1856. He was sold to Columbus Delano in October, 1859, and hence the name I have given him. He was left at my place for delivery to Mr. Delano, and while with me I let him to the "Wrinkle Neck Ewe," No. 4, above.

"Matchless 2d," Howe & Renfrew's, was bred by Edwin Hammond, lambed in the spring of 1862, and bought with two others, all lambs, from Mr. Hammond by Wm. Batchelor, and brought out in September, 1862.

"Gen. Humphreys," Howe & Renfrew's, was bred by Wm. R Remile, lambed in the spring of 1862, and bought with another, both lambs, from Mr. Remile by Wm. Batchelor, and brought out in September, 1962.

All the sheep on exhibition were fairly, closely, and regularly shorn on the 8th and 9th days of May, 1865; nothing was ever put upon them that would give weight or color to the wool. All the ewes, except No. 1, No. 13, No. 16 and No. 18, produced lambs this spring, and raised and suckled them without assistance.

T. S. Humrickhouse.

Coshocton, O., Sept. 1, 1865.

State of Ohio, Coshocton County:

I, T. S. Humrickhouse, on my oath, say that I am the owner of the sheep entered for exhibition; and that the foregoing pedigrees and statements made in regard to them are true.

T. S. Humrickhouse.

Sworn to and subscribed before me this fourth day of September, A. D. 1865.

W. R. Forker, J. P.

State of Ohio, Coshocton County:

I, James Graham, of said county, being duly sworn, say that on the 8th and 9th days of May, A. D. 1865, I sheared the home flock of Atwood sheep of T. S. Humrickhouse, both ewes and rams, and that the same were fairly, closely, and regularly shorn.

James Graham.

Sworn to and subscribed before me this second day of September, A.D. 1865.

Charles Craig, J. P.

SILESIANS.

In this class there were thirteen entries. The awards were as follows:

Best buck 2 years old and over, John Singer, New Athens	$15
Best buck under 2 years old, A. E. Sprague, Reynoldsburg	15
2d best buck under 2 years old, John Singer, New Athens	10
Best pen of 5 ewes 2 years old and over, John Singer, New Athens	15
Best pen of 5 ewes under 2 years old " "	15
Best pen of 5 ewe lambs " "	10

Awarding Committee.—J. PARK ALEXANDER, S. S. WILLIAMS, D. ROBINSON, E. RIDDLE.

LEICESTERS.

In this class there were twenty-five entries. The following are the awards and report of committee:

Best buck 2 years old and over, Benj. B. Browning, Springfield, Clark County	$15
2d best " " R. Baker, Avon, Lorain County	10
Best buck under 2 years old, John Nicholas, Northampton, Clark County	15
2d best " " Thomas Aston, Elyria, Lorain County	10
Best pen of 5 ewes 2 years old and over, Fred. P. Vergon, Delaware, Delaware Co	15
2d best " " " " " "	10
Best pen of 5 ewes under 2 years old, John Nicholas, Northampton, Clark County	15
2d best " " Fred. P. Vergon, Delaware, Delaware County	10
Best pen of 5 ewe lambs " " " "	10

REPORT OF COMMITTEE.

The committee on the class of Leicester sheep respectfully report that the sheep shown in this class were highly creditable to the exhibiters, and satisfactory to all concerned. The sheep marked commended are very fine specimens of the breed, highly creditable to the exhibitors, and worthy of the consideration of the State Board of Agriculture.

Awarding Committee.—DAVID ROBINSON, J. H. SHIELDS, CALVIN DODGE.

COTSWOLDS.

In this class there were ten entries. The following are the awards and report of committee:

Best buck 2 years old and over, "Geo. Miller," John J. Dodge, New Lyme Ashtabula County	$15
2d best buck 2 years old and over, "Simon," Jeremiah Dodge, New Lyme, Ashtabula County	10
Best buck under 2 years old, Thomas Aston, Elyria, Lorain County	15
2d best " " "Snow Ball," N. L. Chaffee, Jefferson, Ashtabula Co	10
Best pen of 5 ewes 2 years old and over, Thomas Aston, Elyria, Lorain County	15
Best pen of 5 ewes under 2 years old " " "	15
Best pen of 5 ewe lambs " " "	10

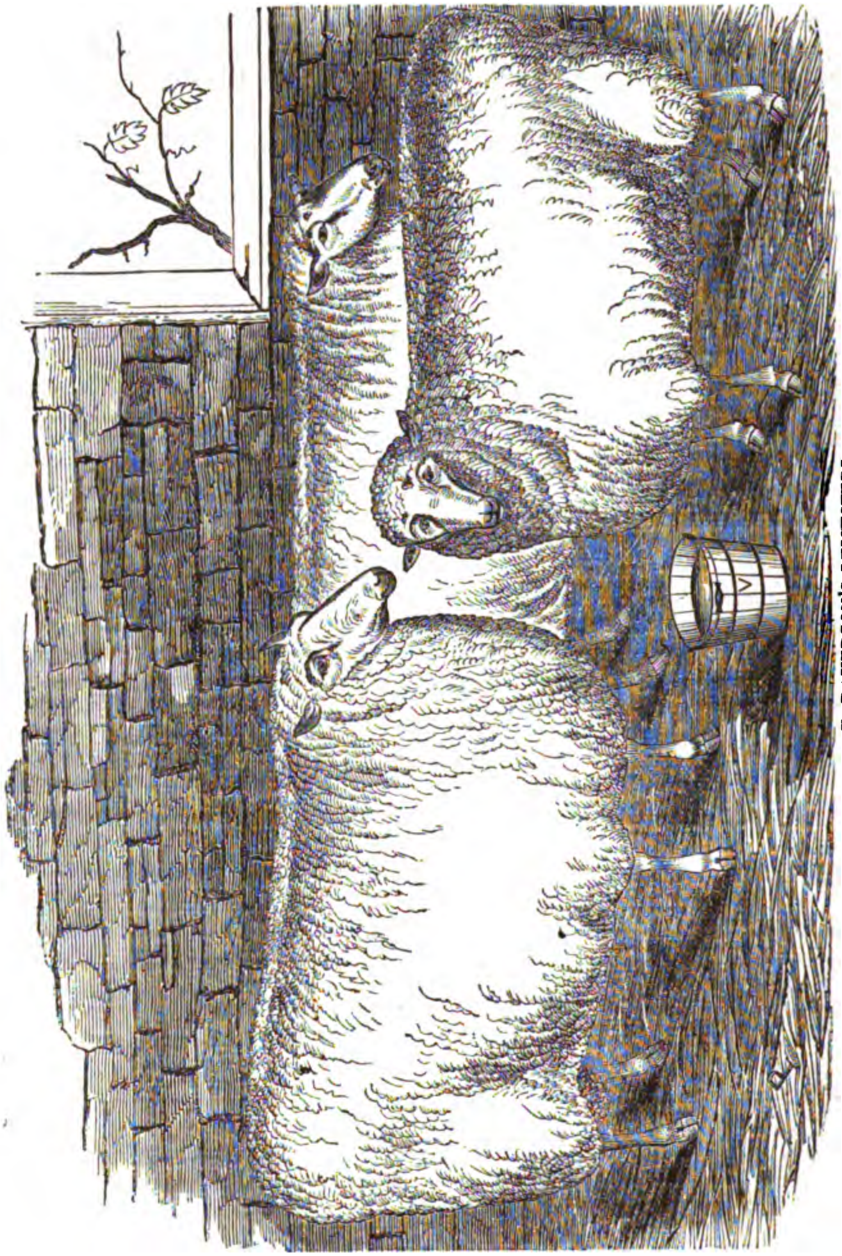
REPORT OF COMMITTEE.

The committee are of the opinion that the exhibiters of sheep should not show their sheep without leaving the wool at least six months growth when shown. We recommend to exhibiters of sheep to show them in their natural state

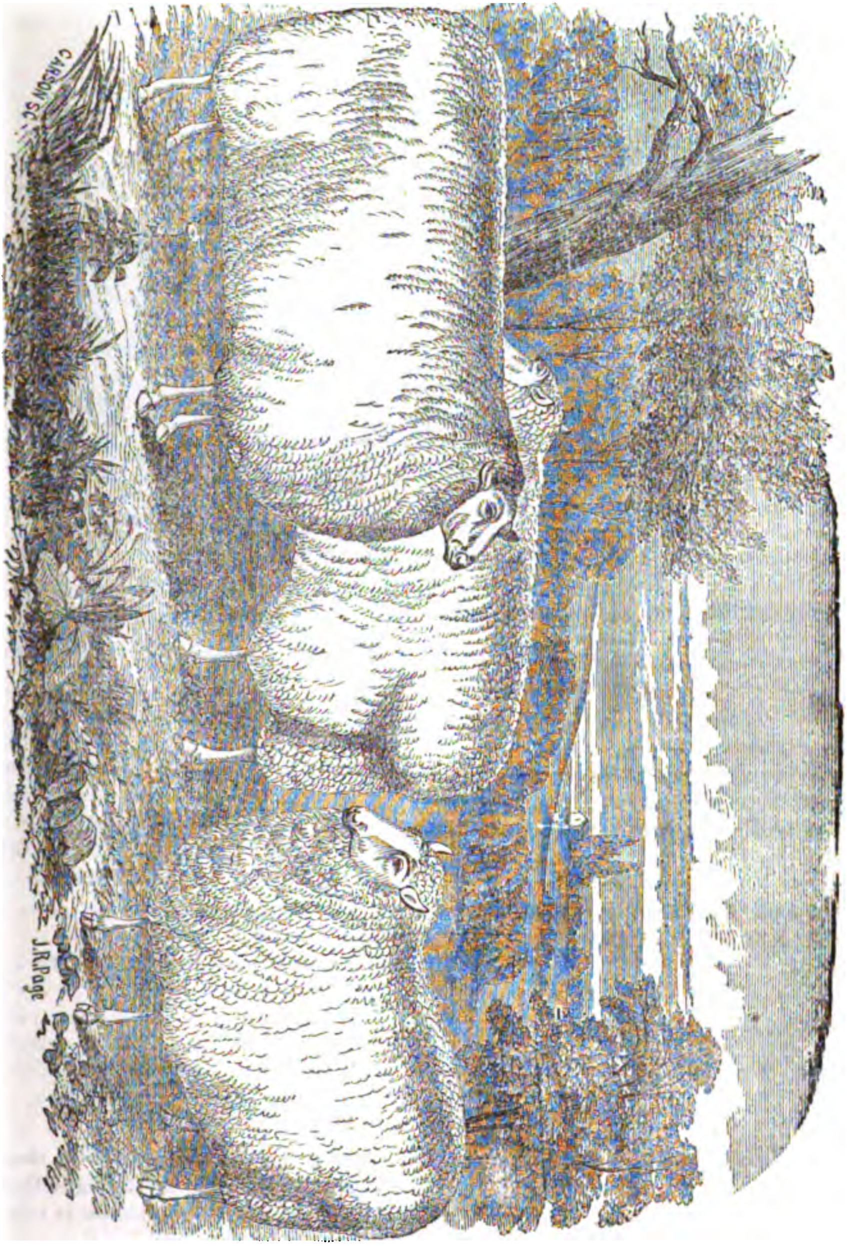
We were well pleased with the sheep shown by Mr. Thomas Aston, and think him a successful breeder of the Cotswolds.

Awarding Committee.—JONATHAN FARRAR, BENJ. B. BROWNING, URIAH SHIP, DAVID T. COLVIN.

"Sancho Panza," "Dulcinea" and "Nannie," property of Fred. P. Vergon, of Delaware, Ohio. "Sancho Panza," the buck, is four years old, and bred by Hon. N. S. Townshend, of Lorain County, Ohio, from imported animals. The two ewes are three years old, and bred by the proprietor, directly from imported animals—sire from England, dams from Canada. "Dulcinea" and "Nannie" are two of the five ewes that won the first prize at the Ohio State Fair at Columbus, in 1865.

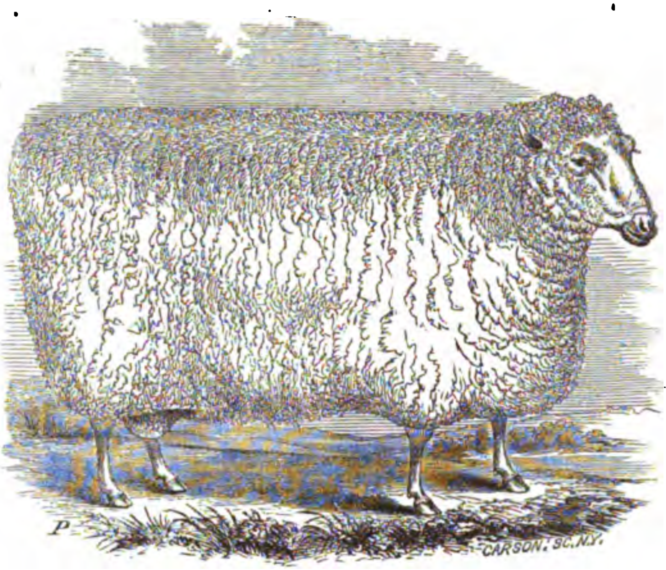


F. P. VERGON'S LEICESTERS.



LEICESTER LAMBS.

Property of Fred. P. Vergon, of Delaware, Ohio. The lambs represented in the cut are six and one-half months old, and bred by the proprietor. Sire, "Sancho Panza," dams, the get of imported animals, and are three of the five ewe lambs that won the first prize at the Ohio State Fair, at Columbus, in 1865.



PEDIGREE OF SNOW-BALL.

Cotswold ram, owned by N. L. Chaffee, of Jefferson, Ashtabula County, Ohio, one year old—took the second premium at the Ohio State Fair in 1865.

SOUTHDOWNS AND FAT SHEEP.

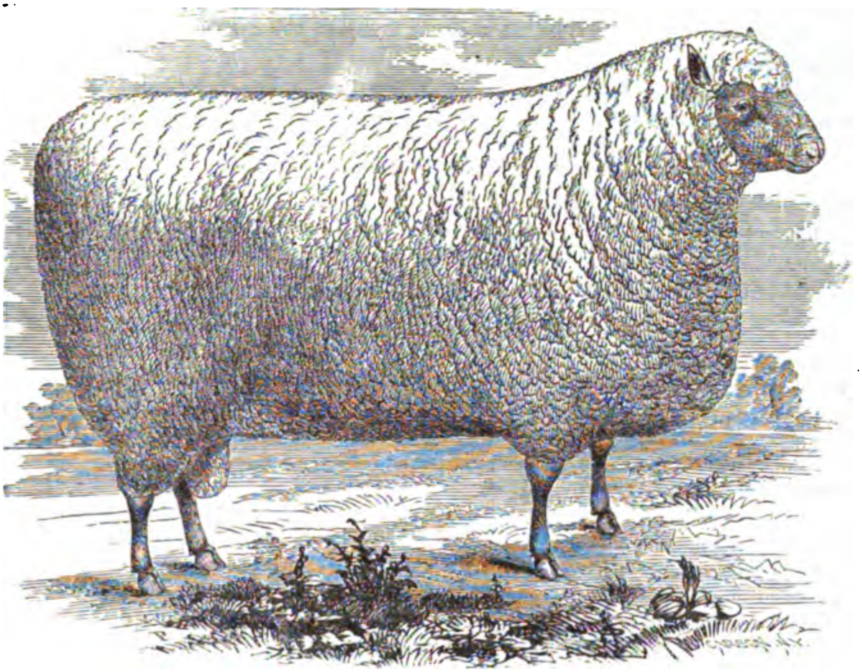
In this class there were twenty-three entries. The following are the awards and report of committee:

Best buck 2 years old and over, "Vigor," N. L. Chaffee, Jefferson, Ashtabula County	$15
2d best buck 2 years old and over, W. F. Hubbard, Ashtabula, Ashtabula County	10
Best buck under 2 years old, Thomas Binnington, Laporte, Lorain County	15
Best pen of 5 ewes over 2 years old, W. F. Hubbard, Ashtabula, Ashtabula County	15
2d best " " " Thomas Bennington, Laporte, Lorain County	10
Best pen of 5 ewes under 2 years old " " "	15
Best pen of 5 ewe lambs " " "	10
2d best " " " " "	5
Best pen of 5 fat lambs " " "	10

REPORT OF COMMITTEE.

The undersigned committee, to whom was referred the class of Southdown sheep, respectfully report that the show of this breed of sheep was highly gratifying to them, and in our judgment superior to any collection of the same breed ever shown at any of the previous State Fairs. For symmetry of form, purity of blood, and for the general superiority of the mutton qualities, deserve to be encouraged by the citizens of our State.

Awarding Committee.—GEO. W. PENNEY, OHIO F. JONES, ROBERT KENNEDY, JOHN MARTIN.



PEDIGREE OF VIGOR.

Southdown ram, owned by N. L. Chaffee, Jefferson, Ashtabula County, Ohio; took the first premium at the Ohio State Fair in 1865; bred from flock of Jonas Webb, Cambridgeshire, England. His sire was old Vigor, dam No. 4 sired by World's Prize, which took the first premium at the World's Fair, in London. Vigor shears eight pounds of washed wool.

SWEEPSTAKES ON FINE WOOL SHEEP.

In this class there were thirty-five entries. The following are the awards and report of the committee:

Best buck of any age or breed, "Eureka," Wright & Delano, Mt. Vernon, Ohio.....	$50
Best ewe of any age or breed, A. J. Starr, Carey, Wyandot County, Ohio............	25
Best pen of not less than 5 ewes of any age or breed, D. P. McMillen, Newark, Licking County, Ohio..	50

REPORT OF COMMITTEE.

Your committee would respectfully report that the competition for sweepstakes was of a character worthy of the State. There were twenty entries of bucks, and all shown. Five of which your committee think worthy of a sweepstakes premium. On the first marking the committee voted four to one for entry twenty-three, (Eureka,) owned by Wright & Delano of Mt. Vernon, Ohio. The other four bucks were owned by Perrine & McNall, Bingham & Eells, Matthews & Forsman, and Charles F. Streight. The sheep "Barbee," owned by Shipps, Coulter & Co., your committee thought worthy of special commendation, but owing to his age (he being six years old,) they thought it their duty to give the award to a younger buck. Of single entries of ewes there were eight, all very good. H. J. Starr ("Miss Dean,") having the best of the pen of 5 ewes. D. P. McMillen, of Newark, Ohio, we thought, deserved the award, which we respectfully submit.

Awarding Committee.—J. W. Worcester, James Pittsford, R. E. Moulton, R. C. Thompson, J. H. Brotherton.

SWEEPSTAKES ON LONG WOOL SHEEP.

In this class there were ten entries. The following are the awards:

Best buck of any age or breed, John J. Dodge, New Lyme	$25
Best pen of not less than 5 ewes of any age or breed, Samuel Toms, Oshawa, C. W.	25

Awarding Committee.—Robt. Kennedy, Jeremiah Duncan, Wm. Warfield.

At the suggestion of many wool growers, the State Board of Agriculture offered the following premiums:

For the heaviest and best fleece of cleansed wool—

Best fleece of buck	$20
" ewe	20

Competition for the above premiums will be under the following conditions:

In order to ascertain the shrinkage of wool in scouring for the cards, the fleeces will be sent to the Board as taken unwashed from the sheep, with affidavits and proof setting forth the time of shearing in 1864 and 1865, and that the fleece is what it purports be—*a single fleece.* These fleeces will be received by a committee of the Board, consisting of Messrs. Jones, Fullington and Greer, and put into the hands of an impartial party, to be scoured in the usual way practiced by manufacturers. Each fleece will be weighed and numbered by the committee, and sent to the factory, with the numbers, but without the names of the owners.

The fleeces must be delivered free of expense to the Board, at the "State Agricultural Rooms, Columbus Ohio," on or before the first day of August, 1865.

The fleeces were scoured at the Columbus Woolen Manufactory. The results are given on pages 133, 134 and 135, and the following awards were made:

AWARDS ON BEST FLEECE OF WOOL.

Thomas Gorby, Portage County, best buck fleece	$20
H. J. Starr, Wyandot County, best ewe fleece	20

CASHMERE GOATS.

In this class there were six entries. The following are the awards:

Best	thoroughbred	buck,	"Young Sampson,"	James Baker,	Johnstown,	Licking Co..	$10
"	"	she goat,	"Beauty,"	"	"	"	.. 5
2d best	"	"	"Toledo,"	"	"	"	.. 3
Best	"	three kids		"	"	"	.. 5

Awarding Committee.—S. S. Williams, D. T. Colvin, G. A. Hopkins.

STATEMENT OF FLEECES OF WOOL ON EXHIBITION AT OHIO STATE FAIR, 1865.

NAMES OF EXHIBITERS.	Order of merit.	Sex.	Age in years and days.	Condition of Animals	CHARACTER OF FLEECE.			
					As to amount of oil.	Congealed gum.	Color of yolk.	External ends.
1. Thomas Gorby—"Hannibal"	1	Male				Very little	Buff	Dark
2. J. Birchfield—"Dick"	2	Male	4.	Good	Moderate	Small amount	Light	Dark
3. E. Matchem—"Curly"	3	Male	1.315		Very	None	Slightly buff	Dark
4. A. P. Read—"Long Staple"	4	Male	3.		Dry	None	Slightly buff	Light and pointed.
5. L. L. Sears—"Fremont"	5	Male	2.	Good	Medium	None	Slightly buff	Dark
6. H. J. Starr—"Hero"	6	Male	2.303	Full	Excessive	Very much	Buff	Very dark
7. Curtis Kelsey—"Lawrence"	7	Male	3.		Slight	Small amount	Light	Dark
8. Charles Stoolfire—"Young Longwool"	8	Male	2.11	Full		None	White	Dark
9 Thomas & Jamison—"Wrinkley"	9	Male	4.		Slight	None	Buff	Dark
10. Isaac Thomas and Andrew Jamison—"Champion"	10	Male	2.332		Excessive	Considerable.	Buff	Very dark
11. Curtis Kelsey—"Lawrence"	11	Male	2.		Slight	Small amount.	Light	Dark
W. A. Geese—"Silvermine 2d,"	*	Male	4 60	Not fat	Dry and harsh		White	Light
1. H. J. Starr—"Red Ears"	1	Female	3.	Full	Medium	None	Slightly buff	Dark
2. Curtis Kelsey—"Giant Ewe"	2	Female	4.		Moderate	None	Buff	Dark
3. W H. Cochran—"No name"	3	Female	2.36		Medium	None	White	Dark
4. Eli Keller—"Queen of the West"	5	Female	5.	High	Very	None	Buff	Dark
5. I. J. Anderson—"Top-Knot"	4	Female			Moderate	None		Dark
6. I. J. Anderson—"Big Ewe"	6	Female			Moderate	None		Black

* Ruled out—fraudulent—6¼ pounds of other wool.

STATEMENT OF FLEECES OF WOOL ON EXHIBITION AT OHIO STATE FAIR, 1865—Continued.

NAMES OF EXHIBITERS.	CHARACTER OF FLEECE.					Weight of Fleece.	COMMERCIAL GRADES.			
	Length of staple.	Density.	Fineness.	Style.	General condition.		1st quality.	2d quality.	3d quality.	4th quality (or tags.)
						lbs. oz.	lbs. oz.	lbs. oz.	lbs. oz.	lbs. oz.
1. Thomas Gorby—"Hannibal"	Medium	Great	Medium	Fine		24.4	12.13	7.5	2.8	1.10
2. J. Birchfield—"Dick	Medium	Medium	Medium	Good		21.11	14.1	5.6	1.4	1.0
3. E. Matchem—"Curly"	Short	Medium	Medium	Medium		13.4	6.2	1.13	2.0	3.5
4. A. P. Read—"Long Staple"	Long	Fair	Medium	Medium	Bad	12.4	6.4	2.4	1.9	2.3
5. L. L. Sears—"Fremont"	Long	Medium	Rather coarse.	Fair		23.1	10.8	4.13	5.0	2.12
6. H. J. Starr—"Hero"	Medium	Dense	Medium	Fair		21.15	10.2	5.13	2.8	3.8
7. Curtis Kelsey—"Lawrence"	Medium	Fair	Medium	Fair		20.8	12.6	3.14	2.12	1.8
8. Charles Stoolfire—"Young Longwool"	Long	Medium	Extra	Extra		15.8	6.7	4.3	2 14	2.0
9. Thomas & Jamison—"Wrinkley."	Medium	Dense	Medium	Medium		20.12	12.8	2.13	2.15	2.8
10. Isaac Thomas and And. Jamison—"Champion"	Short	Dense	Medium	Medium		22.14	11.8	2.0	3.10	5.12
11. Curtis Kelsey—"Lawrence"	Medium	Fair	Medium	Fair		16 1	9.12	3.0	1.15	1.6
W. A. Geese—"Silvermine 2d,"	Medium		Inferior	Inferior	Bad	18.2	9.14	4.12	2.4	1.4
1. H. J Starr—"Red Ears"	Good	Medium	Medium	Good		14.15	5.0	2.14	4.3	2.14
2. Curtis Kelsey—"Giant Ewe"	Good	Medium	Medium	Fair		10.12	5.12	1.14	1.4	1.14
3. W. H. Cochran—"No name"	Long	Open	Medium	Good	Not Good	11.1	4.14	1.15	1.12	2.8
4. Eli Keller—"Queen of the West"	Medium	Great	Medium	Good		14.6	7.3	3.8	1.6	2.5
5. I. J. Anderson—"Top Knot"	Medium	Medium	Medium	Fair		11.14	6.13	2.5	1.8	1.4
6. I. J. Anderson—"Big Ewe"	Good	Fair	Medium	Good		12.2	6.15	2.6	1.3	1.10

STATEMENT OF FLEECES OF WOOL ON EXHIBITION AT OHIO STATE FAIR, 1865—Continued.

Names of Exhibiters.	Weight of scoured wool.	Per centage of fleece to live weight.	Per centage of scoured wool to fleece.	Per. centage of shrinkage.	Age of fleece—days.	Weight of carcass.	Quantity of wool each day in decimals of a pound.	Quantity of wool produced by 1 lb. of animal each day in decimals of a pound.	Quantity of wool produced in one year in pounds.	Quantity of wool produced by 1 lb. of animal in a year in decimals of a pound.	Net weight of scoured wool in lbs. and decimals.	Weight of fleece shorn, in lbs and decimal parts.	Per centage of scoured wool to live weight of sheep produced in one year.
	lbs. oz.					lbs.							
1. Thomas Gorby—"Hannibal"	8.2	19.24	33.5	66.5	365	126	.0222	.000176	8.125	.06446	8.125	24.25	6.44
2. J. Birchfield—"Dick"	6.13½	20.08	31.5	68.5	360	108	.019	.000176	6.935	.06424	6.843	21.687	6.42
3. E. Matchem—"Curly"	4.6½	18.3	33.2	66.8	357	72	.0123	.00017	4 489	.0623	4.406	13.25	6.23
4. A. P. Read—"Long Staple"	5.8	13.38	44.9	55.1	355	91½	.0155	.000169	5.657	.0617	5 5	12.25	6.17
5. L. L. Sears—"Fremont"	8 3	16.85	35.5	64.5	368	137	.0222	.000162	8.103	.0598	8.187	23.062	5.98
6. H. J Starr—"Hero"	5.11½	22.38	26.1	73.9	362	98	.0158	.000161	5.767	.0588	5 718	21.937	5.88
7. Curtis Kelsey—"Lawrence"	6.10	15.64	32.3	67.7	364	131	.0182	.000139	6.643	.0507	6.625	20.5	†5.07
8. Charles Stoolfire—"Young Longwool"	4.7	15.5	28.6	71.4	361	100	.0123	.000123	4.489	.0448	4.437	15·5	4.48
9. Thomas & Jamison—"Wrinkley"	6.13½	12.99	32.9	67.1	371	152	.0184	.000121	6.716	.0441	6.843	20.75	4.41
10. Isaac Thomas and And. Jamison—"Champion"	4.7	20.79	19.4	80.6	364	110	.0122	.000111	4.453	.0405	4.437	22.875	4.05
11. Curtis Kelsey—"Lawrence"	5.14	12.26	36.5	63.5	405	131	.0142	.000108	5.183	.0395	5.875	16.062	‡3.95
W. A. Geese—"Silvermine 2d,"	8.11	13.42	47.9	52.1	350	135	.0248	.000183	9.052	.067	8.687	18.125	*6.7
1. H. J. Starr—"Red Ears"	6.0	18.44	40.1	59.9	363	81	.0165	.000204	6.029	.0744	6.	14.937	7.44
2. Curtis Kelsey—"Giant Ewe"	4.9	14.72	42.4	57.6	328	73	.0139	000190	5.073	.0694	4.562	10.75	6.94
3. W. H. Cochran—"No name"	4.4	17.01	38.4	61.6	370	65	.0115	.000177	4.197	.0646	4.25	11.062	6.46
4. Eli Keller—"Queen of the West"	5.0½	16.91	35.	65.	367	85	.0137	.000161	5.	.0587	5.031	14.375	5.87
5. I. J. Anderson—"Top-Knot"	4.4	15 42	35.8	64.2	362	77	.0117	.000152	4.27	.0554	4.25	11.875	5.54
6. I. J. Anderson—"Big Ewe"	4.5	12.33	35.5	64.5	362	97½	.0119	.000122	4.343	.0445	4.315	12.125	4.45

† Fleece of 1864. ‡ Fleece of 1864.

SWINE.

LARGE BREEDS.

In this class there were 13 entries. The following are the awards:

Best Boar, 2 years old and over, Lester Bartlett, Cardington, O	$20
2d best do do F. Swisher, Groveport, O	10
Best Boar, 1 year old and under 2, A. G. Smith, Newbury, (Ford P. O.) O	15
2d best do do Morris Evans, Columbus, O	10
Best Boar, under 1 year old, Lester Bartlett, Cardington, O	10
2d best do do George Anderson, Painesville O	5
Best Sow, 1 year old and under 2, J. H. Shields. Xenia, O	15
2d best do do A. J. Ryan, Columbus, O	10
Best Sow, with litter of not less than 5 sucking pigs, Lester Bartlett, Cardington, O.	20
2d best do do do A. J Ryan, Columbus, O	10
Best Litter of not less than 5 pigs over six months old, A. G. Smith. Newbury, (Ford P. O.) O	15

Awarding Committee.—G. W. HISKETT, GEO. POUNDSTONE, T. P. JOHNSON.

SMALL BREEDS.

In this class there were 9 entries. The following are the awards.

Best Boar, 2 years old and over, George W. Byers, Nevada, O	$20
2d best do do Thomas, Binnington, Laporte, O	10
Best Boar, 1 year old and under 2, James Thomas, Columbus, O	15
2d best do do G. W. Hisket, Cardington, O	10
Best Sow, 1 year old and under 2, G. W. Byers, Nevada, O	15
2d best do do Thomas Binnington, Laporte, O	10
Best Sow with litter of not less than 5 sucking pigs, R. R. Evans, Columbus, O	20

Awarding Committee.—J. C. GALLOWAY, J. W. BROWNING.

SWEEPSTAKES ON SWINE.

In this class there were 9 entries. The awards were as follows:

Best Boar of any age or breed, J. H. Shields, Xenia, O	$15
Best Sow of any age or breed, Lester Bartlett, Cardington, O	15

Awarding Committee.—J. N. BEATTY, A. P. O'NEALL, WM. HAGLER.

POULTRY.

In this class there were 94 entries. The awards were as follows.

Best pair of China Fowls, Henry Bishop, Springfield	$5
2d best do Eddy Mooney, Columbus	3
Best pair of Game Fowls, Henry Bishop, Springfield	5
2d best do same do	3
Best pair of Dorkings, same do	5
2d best do same do	3
Best pair of Polands, same do	5
2d best do same do	3
Best pair of Spanish, G. W. Hiskett, Cardington	5
2d best do A. E. Glenn, Columbus	3
Best pair of Turkeys, A. W. Livingston, Reynoldsburg	5
2d best do Henry Bishop, Springfield	3

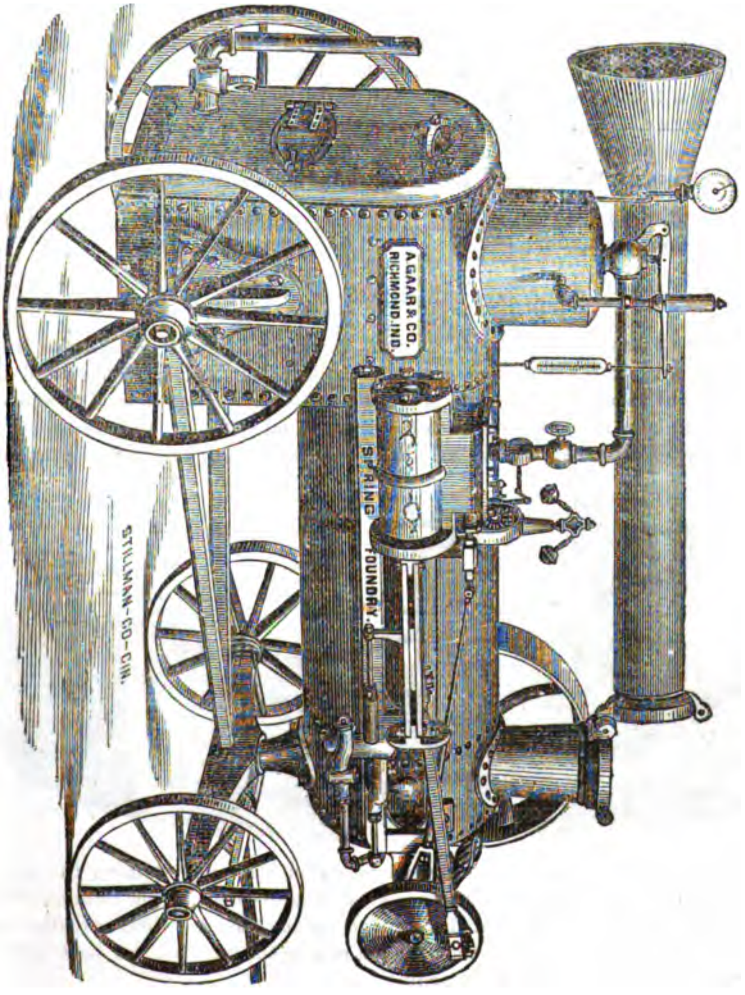
Best pair of Geese, Louis Clegget, Xenia	$5
2d best do Miss Margaret Kelling, Columbus	3
Best and largest exhibition of Poultry owned by one exhibiter, J. C. Cox, Osborne, Greene county	5

Awarding Committee.—S. D. Harris, Henry Ridenour, Chas. Pease.

MACHINERY, ENGINES, ETC.

In this class there were 28 entries. The awards were as follows:

Best Portable Steam Engine, C. C. Winchell & Co., Cincinnati, O	$50
2d best do do A. Gaar & Co., Richmond, Ind	25
Best Scroll Sawing Machine, J. H. Lerow, Newark, N. J	
Best Waterwheel, Leffel & Co , Springfield, O	


A. GAAR & CO. RICHMOND IND.
SPRING FOUNDRY
STILLMAN-CO-CIN.

SQUARE FIRE BOX ENGINE.

Awarding Committee.—H. B. Taylor, C. G. Bradley, John Carnes, Dan'l Miller.

Portable Engines (with both square and round fire box)—For threshing, sawing, shelling corn, plantation and farm use, and for oil purposes. Manufactured by A. Gaart & Co., Spring Foundry and Machine Works, Richmond, Ind.

Cylinder 6¼ inch bore, 13 inch stroke, posts 5 inches wide. Boiler 5 feet long, 28 inches diameter, with 24 2½-inch flues. Uses half a cord of wood and 12 barrels of water per day. Price, $1,300 to $1,350—subject to fluctuation in price of stock.

AGRICULTURAL MACHINES.

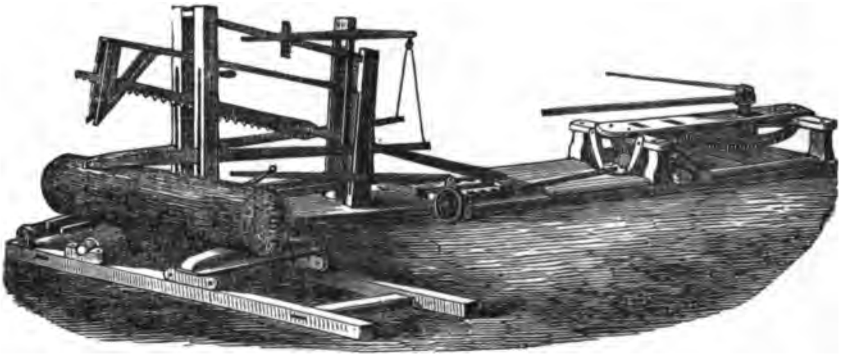
FIRST DIVISION.

In this class there were 53 entries. The awards were as follows:

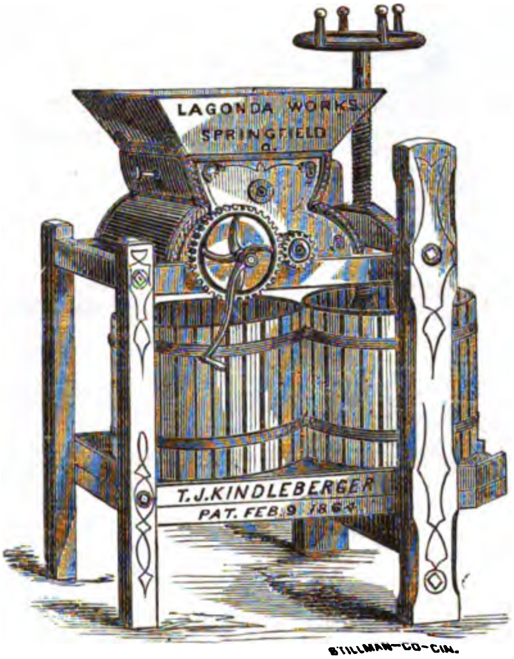
Best Threshing Machine, J. B. Pitts & Co., Dayton, O	$15
" Sweep Horse-power, K. McLennan & Bro., Springfield, O	10
" Circular Saw Mill, operated by horse power, White & Bostwick, Norwalk, O.	5
" Log Cross-cut Saw Mill, horse-power, K. McLennan & Bro., Springfield, O	10
" Clover Huller and Cleaner, Whiting, Roller & Co., Ashland, O	5
" Cider Mill and Press, Warder, Mitchell & Co., Springfield, O	5
" Horse Hay Rake, E. Gregg, Sandusky, O	5
" Hay and Straw Cutter, Thos. Hazzard, Wilmington, O	5
" Hay Press, H. W. Crothers, Wellsburg, West Va	10

Awarding Committee.—John L. Gill, Jr., Robt. Brown, A. B. Eydright, A. D. Zimmerman, R. P. Redick.

This cut represents the **Buckeye Sawing Machine**, ready for work, with its circular attachment. It is simple and complete in its construction; efficient and durable. It requires but two horses to run it, and but two men and a boy to tend it, and will cut four cords an hour from the log, with fair timber and tending. One feature is its *Saw Guide and Log-Holder*, patented by us. With this, we hold any stick from four inches to four feet in diameter, and make any cut to six inches long—running the saw at any speed, whether cutting or not. Another great improvement is the *Circular Attachment*, which we have patented, for circular saws, or for any purpose where circular motion is required. We can change from the cross-cut saw to the circular, and back again, without removing any part of either machine.



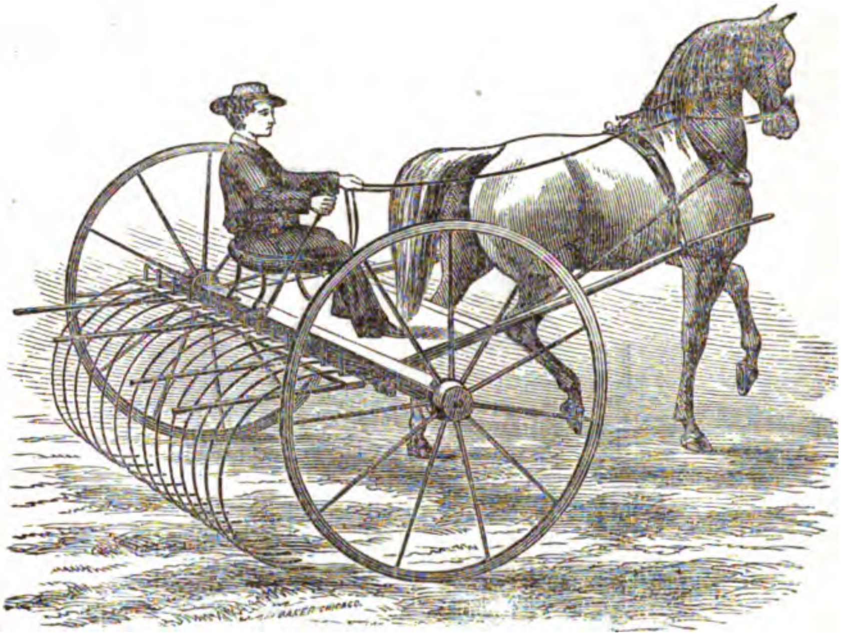
By the introduction of the Portable Cider Mill and Press, the inconvenient and laborious method of making cider has been superceded. The facility with which this Mill is operated, and the expeditious manner in which the labor is accomplished, renders it unquestionably a very desirable implement. The Mill is known as the IMPROVED BUCKEYE. It is not new, except as embodying the improvements of many years of careful experiments, resulting in strengthening weak points, perfecting the grinding apparatus, &c. The points of superiority are as follows



STILLMAN-CO-CIN.

BUCKEYE CIDER MILL AND PRESS.

1. The Adjustable Throat, adapting the Mill to the various sizes and conditions of fruit.
2. The Adjustable Grinding Rollers, for same purpose. [These two features are secured to us by Letters Patent. Without them no Mill can possibly be a perfect grinding apparatus, as the different conditions of the fruit imperatively demand this adjustability.]
3. A neat Metalic Box to hold the bearings of the gearing, preventing the same from getting out of order, from the swelling of wooden sides and ends.
4. The Strong Compact Frame for Mill and Press, with well proportioned bearings for its support.
5. A Strong Iron Beam, with a two-inch Screw, enables us to give the pomace a powerful pressure.
6. The Grinding Apparatus is the most perfect in use, consisting of three horizontal rollers, one above and two below; the upper one has straight flanges, for the purpose of breaking the fruit against the adjustable ribbed throat as it passes through. On one of the lower rollers the ribs are oblique or spiral, and as it revolves it presents to the straight ribs of the other a continuous cutting edge, enabling us to cut the pomace from the skins of the apples, leaving them in such size as to obviate, in most cases, the necessity of using straw, which is found to be deleterious to the cider.



IMPROVED HORSE HAY RAKE.

AGRICULTURAL MACHINES.

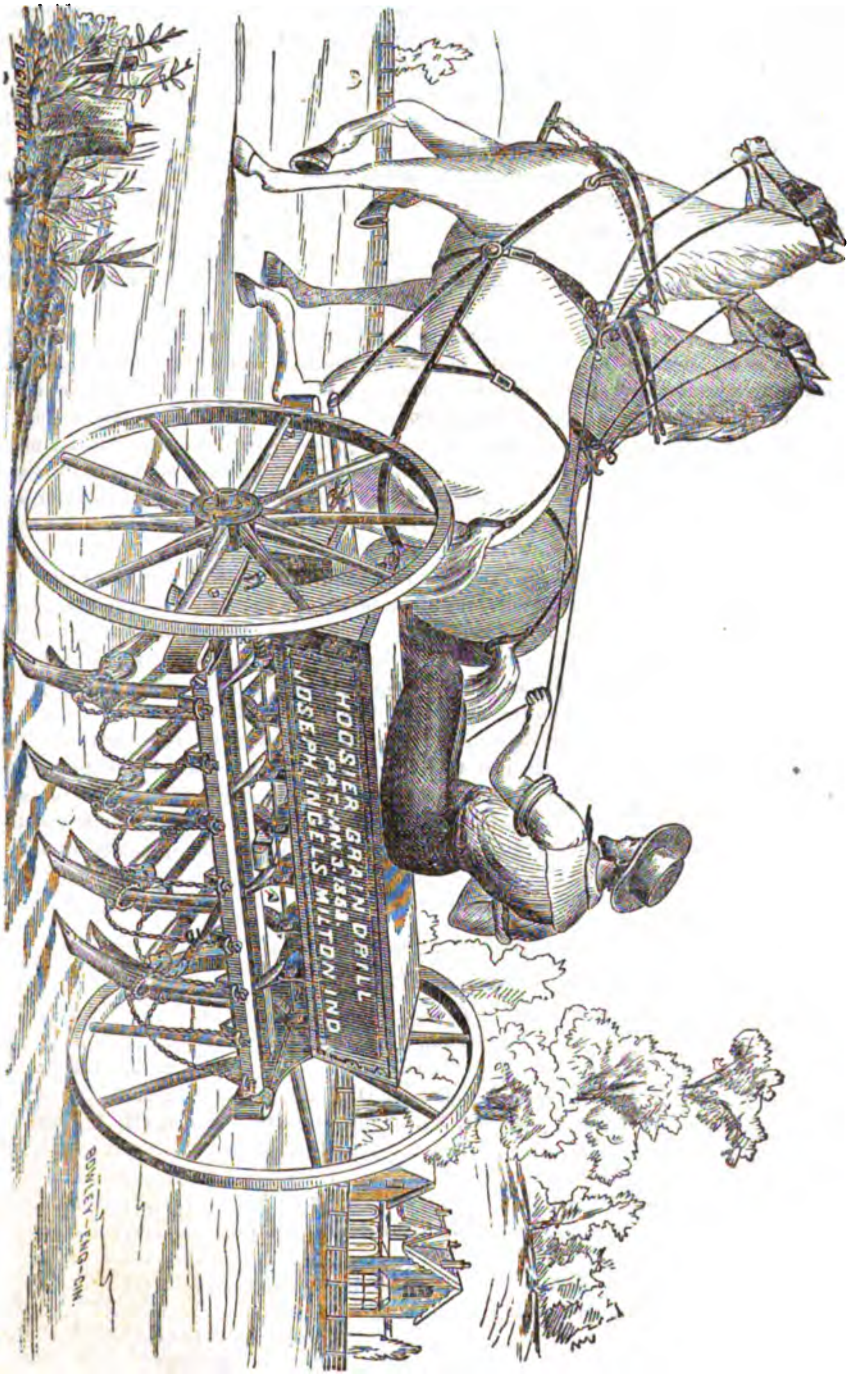
SECOND DIVISION.

In this class there were 90 entries. The awards were as follows:

Best wheat drill, 2 horse, Joseph Ingells, Milton, Ind	$10
2d best wheat drill, 2 horse, Thomas & Mast, Springfield, O	5
Best wheat drill, 1 horse, “ “ “	5
“ grass broadcast sowing machine, Joseph Ingells, Milton, Ind	5
“ clover seed harvester, John McElroy & Son, Delaware, O	10
“ self-raking and reaping machine, Warder, Mitchell & Co., Springfield, O	10
“ mowing machine, Whiteley, Fassler & Kelley, Springfield, O	10
“ combined reaper and mower, C. Aultman & Co., Akron, O	10
“ hay pitching machine, Fowler and Wicks, Upper Sandusky, O	3
“ corn planter, horse power, G. W. Brown, (S. F Mack, agent,) Galesburg, Ill.	5
“ potato digger, Jacob McClure, Rockland, Me	5
“ field roller and crusher, S. R. Sammis, Westerville, O	5
“ two horse corn cultivator, Thomas & Mast, Springfield, O	5

Geo. W. Roby,
Jared Foresman,
E. Dryer,
Awarding Committee.

JOSEPH INGEL'S IMPROVED HOOSIER GRAIN DRILL,


HOOSIER GRAIN DRILL
PAT. JAN. 3. 1861.
JOSEPH INGELS MILTON IND.
BOWLEY-ENG-CIN.

Patented January 6, 1862 and June 6, 1865: Manufactured by J. Ingels & Co., Milton, Wayne county, Indiana.

Durability and simplicity, certainty and regularity of action being the important points in all agricultural implements, we have striven to combine all those qualities in the machine, of which the following is a description:

The hoe is made so that it will run in the ground freely and clean itself perfectly, and is held in its proper position by means of a strong steel spring or brace bar, on which is a curved projection on the hoe rests in such a manner that it holds it firmly until it strikes something immoveable, such as a stump or stone, when it will give back, raise out of the ground, pass over the obstruction, and return instantly to its proper position without any aid on the part of the driver.

We use a round lifting bar with loops to secure the chains and lift the hoe, and the latch being fastened to the back frame piece is not so liable to be broken as when fastened to the seed-box.

When the hoes are raised, it throws the machine out of gear and stops the feed. The frame is so constructed that both tube boards are nailed to it from end to end, making them more permanent than the old way of nailing only at the ends. The rear end of the tongue is secured by a loop passing through the frame with nuts below, so that it can be kept perfectly tight; and the doubletree is placed behind the second frame piece to allow it more motion. We use eight reversible gear wheels for changing from one quantity to another, by means of which it will sow eleven different quantities of any kind of grain. The manner of using said wheels is given in printed directions with each machine.

The feeding is done by a double diagonal ratch-roll, placed in a concave under the seed box, which forces the grain out, and its shape is such that it draws the grain from the cheeks of the concave, making it impossible for it to cut the grain; the opening in said concave being in the form of a V, which gives perfectly even and uniform flow of grain, said concave being so placed that the operator can see the grain flowing from all the openings when riding on the drill, as well as when walking.

When the box is full, the pressure of the grain has no effect on the aperture. The clover and grass seed sower attached to each machine is so arranged that it sows the seed broadcast, either before or behind the hoes, at the pleasure of the operator, and can be changed from one to the other in a moment, and in stopping the feed of the grain it stops the feed of the grass seed also, and it will sow any quantity, from one quart to two bushels to the acre.

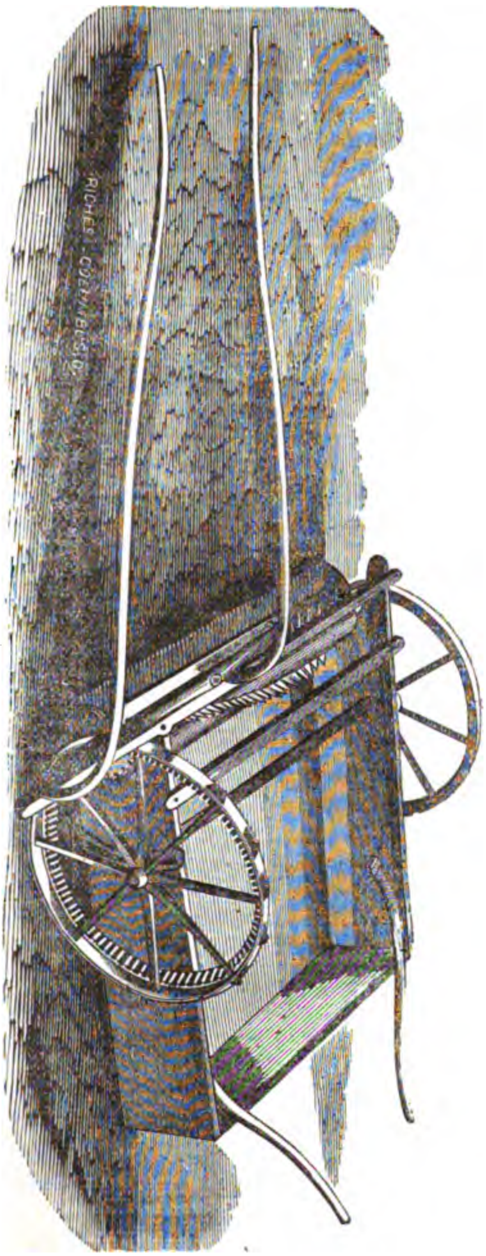
AGRICULTURAL MACHINES.

THIRD DIVISION.

In this class there were 32 entries. The awards were as follows:

Best smut machine, H. B. Taylor, Dayton, O	$5
“ farm feed mill, Joseph Sedgebeer. Painesville, O	5
“ fanning mill, J. Wilder & Co., Cincinnati, O	5
“ stock scales for general purposes, Fairbanks, Greenleaf & Co., (H. J. Ayer, agent) Chicago, Ill	15
“ platform scales, do	5
“ drain tile machine, A. La Tourrette, Waterloo, N. Y	10
“ Farm Gate, C. E. Smith, Detroit, Michigan	3
“ bee hive, H. A. King, Nevada, O	3
“ Refrigerator, A. Forbes & McBeth, Cleveland, O	2
“ portable fence, C. S. S. Griffing, Geneva, O	3

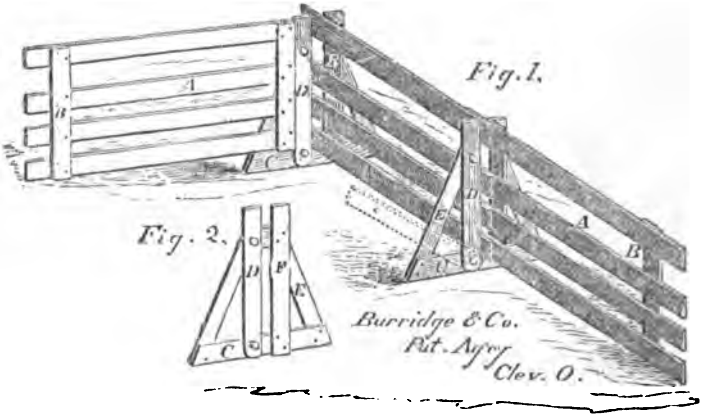
John McClellan,
Thomas Kinney,
Calvin Armstrong,
Awarding Committee.



DECKER'S CLOVER AND GRASS SEED HARVESTER.

The above cut represents a new and novel means for adjusting the gathering apparatus of a Clover seed or head harvester, whereby the machine may be made to gather from short or tall clover, on the side of a hill and on very un-uniform land. It gives an external as well as an inside view of the machine. The cogs, as shown inside of the driving wheel, turns a cylinder in which are placed flat steel teeth in a spiral form nicely adjusted to the fingers underneath, which, with the teeth, bring the clover heads in contact with the cutting bar, which is firmly secured at the back part of the fingers. There is also a sheet iron concave (not shown in the cut) which extends over the cylinder to within three inches of the fingers, and which prevents the teeth from throwing heads over the machine in front. The arm which is shown on the inside is revolved by a belt attached to the end of the cylinder, which draws the heads back into the box. The slotted castings, shown on the outside, are made in a circular form, and so arranged that the machines can be raised and lowered on the wheels at pleasure, without throwing it out of gear. The shafts are so attached that the horse need not tread on the ungathered seed. The handles on the back part of the box gives the operator perfect control of the machine.

The above described harvester nicely and very cleanly strips the heads from high or low clover and grass; leaving the straw on the field, which is quite an object to those who wish to pasture or to plow it under, giving them all the advantage to be gained in enriching the ground and securing the seed in good order. It has been in use about four years and gives satisfaction.



GRIFFIN'S FARM FENCE.

The subject of Fencing is one of the most important, and must increase in importance with the yearly decay of Fences, the growing scarcity and the increased price of lumber. The Portable or Permanent Farm Fence, patented May 24, 1864, by C. & S. Griffing, combines many advantages, as may be seen by considering the following reasons:

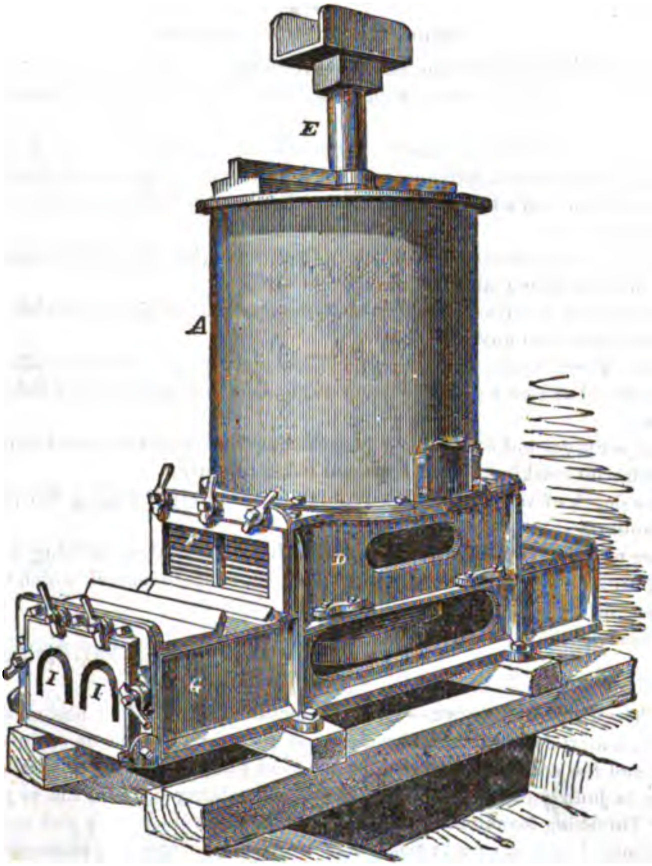
1. It is cheap and simple in its construction, and can be readily made by any farmer who can use an axe, saw and hammer.
2. It can be handled easily, and put up in any shape a farm seems to require.
3. It is stronger than portable fences usually are.
4. It can be used as a sheep rack, under sheds, and around hay stacks, and also makes the best dividing or enclosing fence.
5. It can be made under cover during stormy weather, and thus furnish good employment in which to spend leisure time with profit.
6. It can be made of second class timber that will not work into rails, does not require one-fifth the amount of timber necessary for a rail fence, and is more convenient.
7. For herding and handling sheep, this fence is proving the great desideratum that wool growers have been wanting for years; and, in convenience and time, will pay all cost each year.

8. The panels are so clasped by the upright boards that the strain is, to a great extent, removed from the nails, so that the panels are not likely to warp, but will hold their places until the timber decays by age.

9. It is the most convenient form of fence for a garden or fruit yard that can be made, as it can be removed at the corners so that a team can plow it all without leaving a balk at the corners, as with other fences, and in a few minutes be replaced all right again.

10. From every post a fence can be run off in four different directions—this feature being more perfect and convenient than any other patent ever issued.

The annexed engraving is a Drain Tile Machine, the invention of Samuel M. Smith and Caleb Winegar, of Union Springs, Cayuga county, and is now owned by A. Latourette, of Seneca county, and is manufactured by him at his Iron Works in Waterloo, Seneca county, N. Y. This machine performs the whole labor of grinding the clay, screening it to free it from gravel, and presses it into tile at the same operation, and is propelled by water, steam or horse power.



DRAINING TILE MACHINE.

These machines are furnished with improved sets of dies, that will make tile from material that could not be worked into tile with the common dies. All tiles made through those dies are better, as the form of dies compresses the material and makes the tile much smoother and stronger. Hence it is better for both the manufacturer and consumer, as hard-pressed tile is not so liable to breakage, and smooth tile will not collect sediment to fill up the drains.

As this machine is made of iron, it is very durable. The rollers upon which the cams work, giving the reciprocating motion to the plungers, are chilled; the cams are faced with steel; the shaft and roller gudgeons are wrought iron, and all made in the most substantial manner to withstand the pressure required to work the material as stiff as is necessary to make good tile. The weight of the machine, dies, &c., is 3,200 pounds. One heavy or two light horses is sufficient to work the machine. This machine is portable, or it can be set up and put in operation by any one who has a mechanical eye, and all its working parts are visible and accessible, to see if all is in working order, and to be repaired if it requires it. This machine will grind the clay sufficiently for making pottery ware.

BUCKEYE SULKEY CORN PLOW

We claim to be superior for the following reasons:

1st. We move all the shovels, which enables us to cultivate the ground more thoroughly.

2d. The side movement is made with the feet directly upon the beams, which enables us to make the movement quicker, and more readily dodge the crooked hills.

3d. A greater or less width is obtained by changing one bolt in the bar that connects the plows together.

4th. We use rotary shields which are open around the edge, which more effectually protects the corn than a sliding shield.

5th. The wheels and frame are higher than any other cultivator, which enables us to plow higher corn than any other plow.

6th. Each shovel brace is provided with a wooden pin, which is allowed to break when the shovel strikes a stump, root, or stone, and thus prevents the liability to break the plows.

7th. The arrangement of the plow is such that the rear shovels can be adjusted to the proper width for marking out corn ground before planting.

8th. The depth of the shovels are regulated by merely changing the pins in the top of the standard.

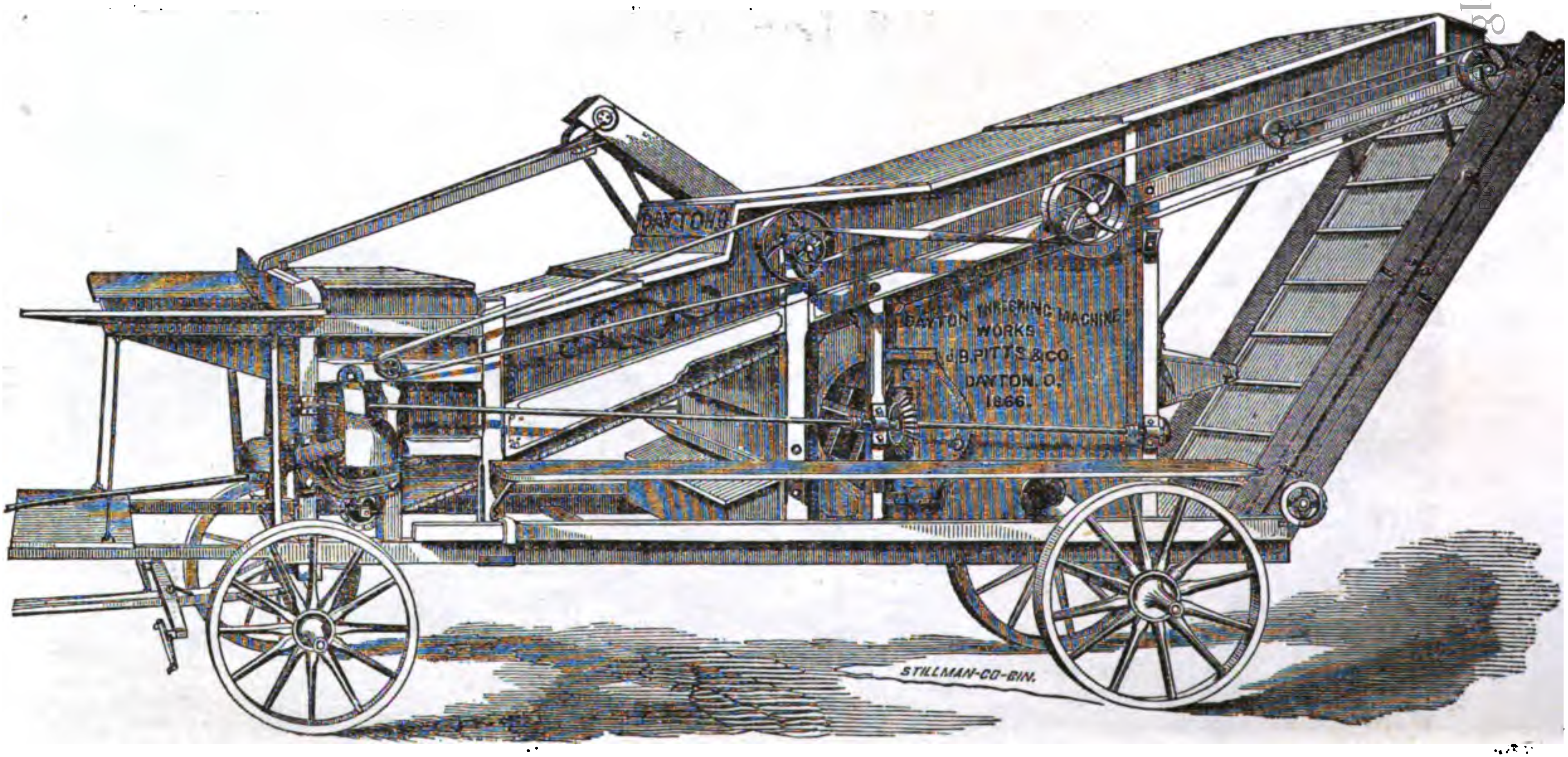
9th. The machine is well adapted for plowing in wheat or stirring fallow ground. For this purpose the plow is provided with a fifth, or extra shovel, which is attached in front of the other shovels.

10th. Its simplicity and ease of repair.

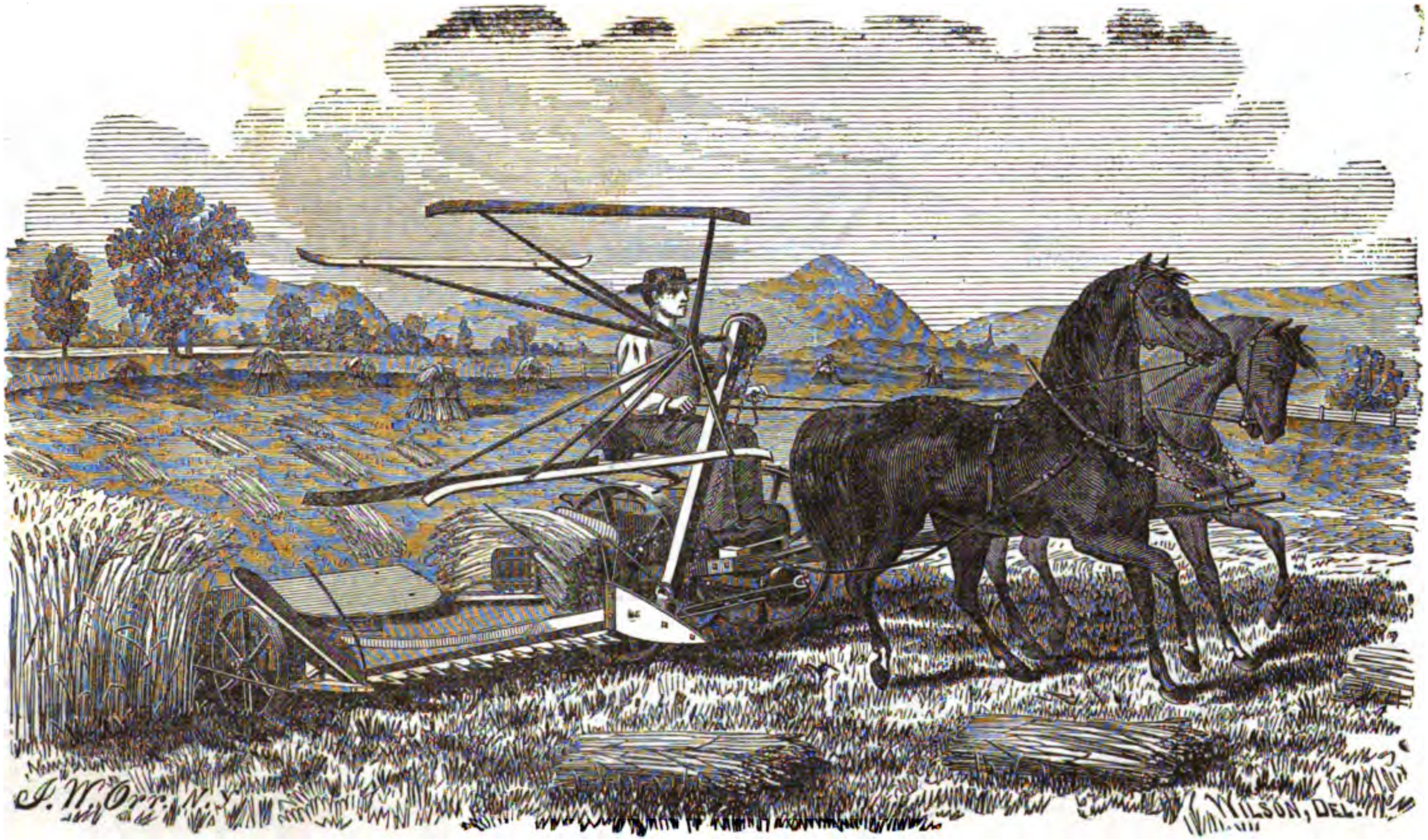
THOMAS & MAST, Springfield, Ohio.

PITTS' THRESHING MACHINE.—The manufacturers devote their best effort's and spare nothing in materials or labor that would add to the improvement or durability of the machine, and feel entirely satisfied that the good judgment of those who use Threshing Machines is judiciously and properly placed in holding up this, the *ne plus ultra* over all other Threshing Machines. It performs its work economically and well; is durable and substantial in every part; not liable to breakages, and the consequent delay and expense. It is the most economical Thresher and Cleaner in the world. The great success of this Machine is in its simplicity, and capacity for performing its work with such rapidity, and to the entire satisfaction of all interested—the Separator and Cleaner being larger in proportion to length of Cylinder than in any other Machine.

J. B. PITTS & CO., Dayton, O.



PITT'S THRESHING MACHINE.


J. W. Orr, N.Y.
Wilson, Del.

THE BUCKEYE AS A SELF-RAKER IN THE FIELD—FRONT VIEW.

The Buckeye, as a reaper, retains all the important advantages which give it prominence as a mower.

Lewis Miller has, the past year invented a self-raker, on an entirely new principle, on which he has obtained a number of patent claims. All its parts are strong, simple and durable. It delivers the grain in compact gavels to the side of the cutting-swath more perfectly than it can be done by hand. The size of the gavels is regulated by the driver.

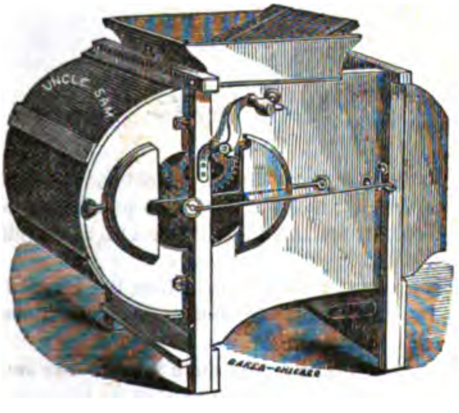
The platform is smaller than any platform now in use. The gearing for driving the rake or fork is simply a level-wheel (to which the fork is attached) pinion, and a continuous shaft from the power to the raker, coupled together like the tumbling shaft of a threshing machine. This shaft is driven by a sprocket-chain, which chain gets its motion direct from the driving-wheel shaft.

The fork has a continuous motion, (except when stopped by the driver to regulate the size of the gavel,) and comes in contact with no part of the platform in its revolution, and therefore avoids all friction, so that no unnecessary power is required to work the fork. This self-raker was tested the past harvest in all kinds of grain, and proved a success.

MILLER, AULTMAN & CO., Akron, O.

CLOVER HULLER AND CLEANER.

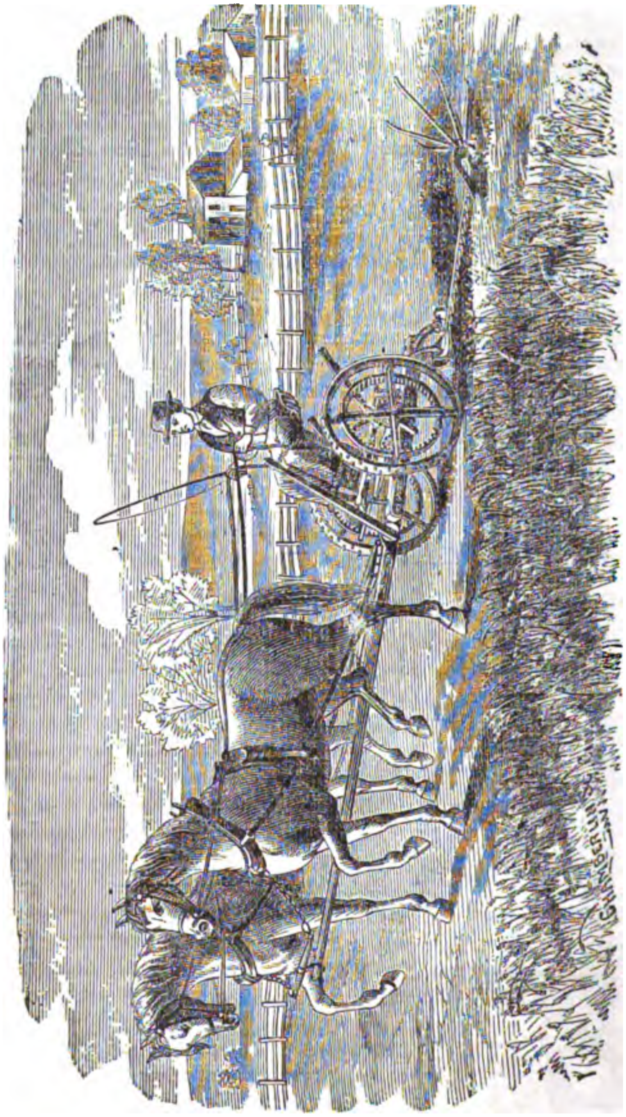
Manufactured by Whiting, Roller & Co., Ashland, Ohio.



UNCLE SAM GRAIN AND SEED SEPARATOR.

This machine is as simple in construction as any ordinary fan mill, and no more liable to get out of order.

The Uncle Sam separates oats, cockle, wild buckwheat, and all other impurities from spring wheat; separates cheat, cockle and all other impurities from winter wheat; separates rye from winter wheat; separates timothy from chaff more rapidly than any other mill extant; separates timothy from clover, millett, or Hungarian grass seed; separates rape and grass seeds from flax seed and all other impurities; separates small from large wheat, making seed wheat; makes five separations of grain and seed at one operation—timothy, clover, wheat, corn and chaff.



CHAMPION MOWING MACHINE

The above cut represents the celebrated Champion No. 3 Mowing Machine, manufactured by Whitely, Fassler & Kelley, Springfield, O., to which the first premium was awarded at the Ohio State Fair, held in September, 1865, in competition with nearly all the leading mowers in use.

This machine has created a new era in the history of mowing machines, having completely surpassed the expectations of the manufacturers, and proven itself the champion as a grass cutter.

This machine has two driving wheels flexibly attached to the main frame. The cutter bar is also flexibly attached to the main frame, and is so arranged that either end of the cutter may be raised to pass over an obstruction without affecting the other; or both ends may be raised at the same time to pass over stumps, stones, or other obstructions. When desired to move the machine from one field to another, the cutter bar may be folded on the rear end of the frame, and the machine perfectly balanced without weight upon the horses' necks. The cutter bar can be attached to or detached from the frame in half a minute, without removing a bolt or screw. The tongue is flexibly attached to the machine, and the machine is perfectly balanced, while any desired weight may be placed upon the cutter bar while the machine is in motion.

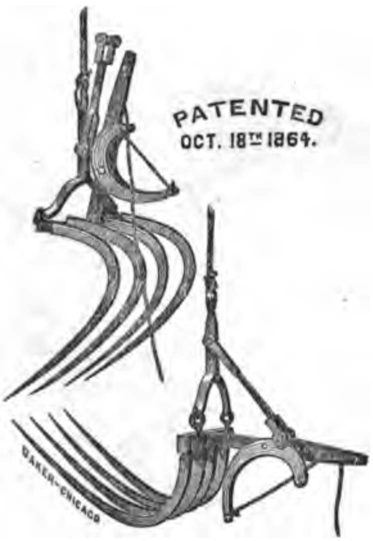
The cutting arrangement of this machine is complete. The cutter bar is of the best quality of cast steel, with wrought iron guards faced with steel, and hardened cutting edges. The heel of the knife is so protected that it cannot be broken, thus removing a serious objection to which so many two wheeled machines are subject. The pitman is connected by a new device, which is perfectly durable, making the most perfect cutting arrangement in existence.

The revolving track clearer, used on this machine, clears the track perfectly, and is found to be the only track clearer that will clear a perfect track in heavy and entangled grass.

This machine has no side draft or weight upon the horses' necks; and, although our smallest machine, in capacity it is equal to the other senior machines, cutting a full swath four feet four inches, and is warranted to be the lightest running and best Mower in use.

Wicks' Self-sustaining and Self-adjusting Iron and Steel Bar Horse Hay Pitch Fork. Patented by F. Wicks, Oct. 18, 1864. Manufactured and for sale by Fowler & Wicks, Wyandot Agricultural Works, Upper Sandusky, Ohio.

At a test recently made as to strength, it proved itself, carrying a weight weighing a little OVER 1,000 POUNDS, without straining or breaking it, at the same time discharging its load with all ease. It is made wholly of wrought iron and cast steel, having *no malleable* or *cast iron about it*, as *have some other forks*. It has no wooden head or handle, to break, split, or in any other way to be affected by the sun, wind or weather. It has no RUBBER *springs*, *latches*, *toggle joints*, or *springs of any kind* to get out of order, to trouble the farmer in harvest time. It is discharged by a trigger, which is simple and certain to operate.



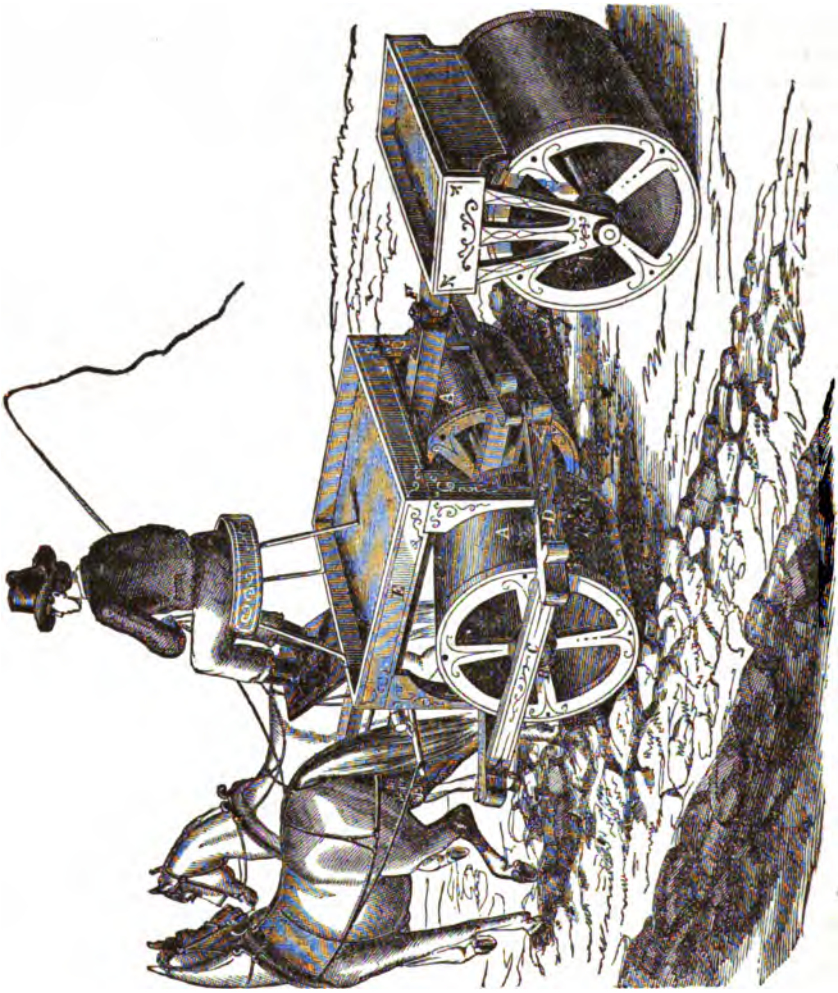
HORSE HAY PITCH FORK.

The mechanism by which it is operated is the *most simple* and *perfect* of any HORSE HAY FORK now before the public.

It will unload a *ton of hay* in less time than five minutes, delivering it to any *part of the mow*, or on a STACK OR RICK.

For BARN OR FIELD purposes it cannot be excelled. *It's an implement* that will *last a farmer his life time*, with proper care, and *one* that will *pay* its cost every few days it is worked.

In these days of mowing machines and horse rakes, it becomes a necessity that the farmer shall have smooth fields, and to this end the skillful mechanic comes to the rescue with his inventions. The old Field Roller has always been an implement of prime necessity with all tidy farmers, and its use on the farm has saved the delay and breakage of the costly mowing machine, and the attendant horse rake. Besides the expense and delays occasioned by rough fields, very much is saved to the farmer by the use of a Field Roller, to level and smooth the plowed land on sowing down to grass, forcing sods and small stones into the soft ground, pulverizing all lumps of earth, pressing the light, loose soil of the surface around the seeds of grain, grass, &c., securing a sure and quick germination and growth of the seeds. By making the earth compact at the surface, insects are deprived of shelter; otherwise the sods, loose stones and lumps of earth afford them convenient habitations. In spring there is frequently great advantage in rolling lands recently sowed to grain and grass, as the earth that has been hove by the frost, exposing the roots of plants, is replaced by the operation, with benefit to the growing crop. The roller is particularly beneficial on light lands, of soil too loose and porous to retain moisture and protect the manure from the effects of drying winds and a scorching sun,



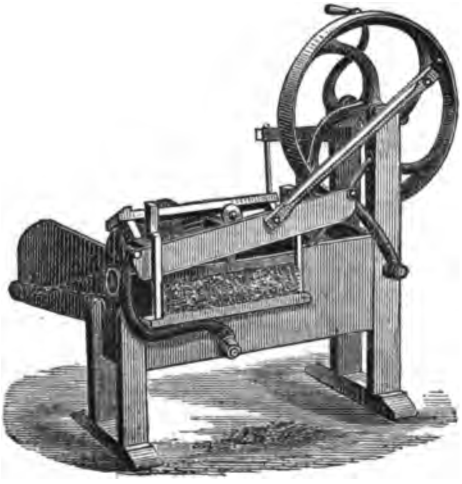
THE BUCKEYE FIELD ROLLER.—Osborn, Wheelock & Co., Hudson, O.

and too light to allow the roots of plants a firm hold in the earth; for on such lands its compressing effect, especially in dry seasons, very much increases the product of crop, as well as preserves the manure from undue evaporation, thus saving a greater portion of its fertilizing properties for the land and succeeding crops.

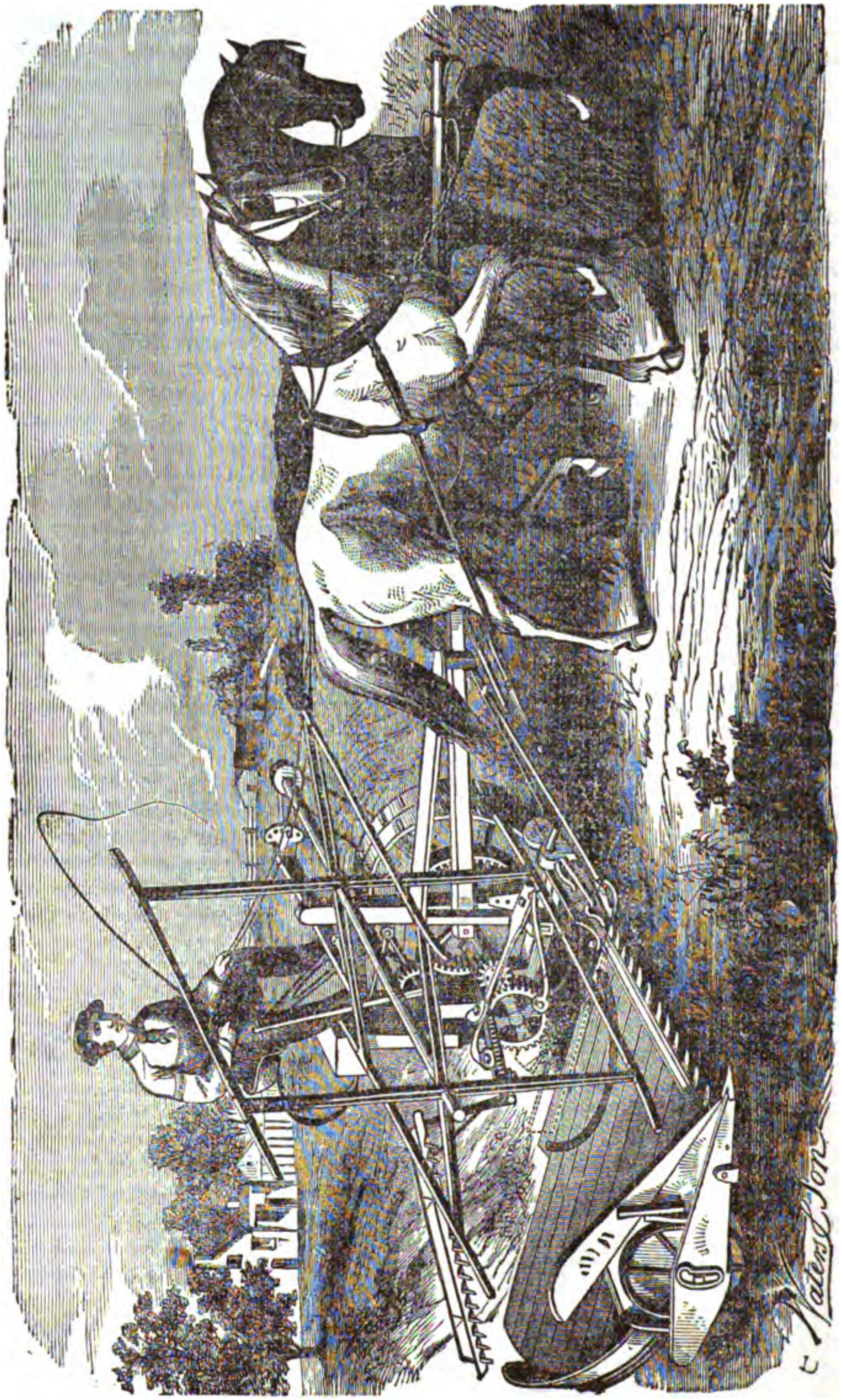
A contemporary of the "Maryland Farmer and Mechanic" says:—"Why don't our farmers use the roller more frequently? Is it because they are not willing to incur the expense of purchase? Is it because they are not disposed to bestow the extra amount of labor involved in rolling their fields, or is it because they do not understand their uses and benefits? Do they not know that a roller is almost indispensable on light soils, because it presses the earth closer around small seeds; that it is equally useful on heavy soils, because it crushes the clods and brings the pulverized earth in direct contact with the seeds; that it is good on grass fields, because it presses small stones, bones, &c., (which would otherwise injure the knives of the mower) into the earth and out of the way, and that it also levels ant and mole hills; that it is useful upon wheat fields in the spring, pressing the plants which have been thrown out by the frost, into the earth again; that it exercises a most happy influence upon oats, if used after the plants have attained a height of three or four inches; in a word, it is good almost everywhere, and ranks very properly with the most important implements of the farm."

The BUCKEYE ROLLER, an illustration of which is on page 152, is the latest and most complete improvement in the way of a Field Roller and Clod Crusher, and is the invention of a farmer who has tested the advantages of rolling land, and had felt the need of such an implement, more complete and easy in its operation. Experience and observation had shown him that the best rollers heretofore in use could not be used to any great extent, because they were heavy on the necks of the team, and very imperfect in working on irregular surfaces. Farmers have only to try the Buckeye Roller to become satisfied that it is all they could desire for a roller. Its weight is about 1100 pounds, sufficiently heavy for light or wet soils, and if more weight is desirable, stone, earth, or other convenient loading, may be put into the boxes over the rollers.

The superiority of this over all other Rollers may be summed up as follows: 1st. The combination is such that it conforms to all irregularities of the surface of the field over which it passes. 2d. It is very light draft, the connection being such that it holds the draft pole so that it plays lightly in the neck-yoke. 3d. It can be wheeled on any required circle as easily as drawn in a straight line. 4th. It is preferable to a wagon for drawing stone, rails or wood over meadows, pastures, or plowed fields; for drawing grain to fields for sowing, and removing plows, harrows, and other utensils to their place of use.



STRAW CUTTER.



NEW YORK SELF-RAKER.

New York Self-Raker.—As Mower and Self-Raking Reaper combined, we submit what we claim as its advantages:

First. The ground wheels are large and are nearly opposite each other, and are broad on the face, rendering the machine light of draught, easy to back or turn, or to be drawn over uneven ground; and as the cutter bar, or if desirable, the whole machine, may be raised on the wheels so as to pass over all ordinary obstructions, it is one of the most convenient machines to move from field to field, or from one farm to another.

Second. Another important feature in this machine, and almost peculiar to it, is the manner of constructing the Reel, and the method of driving it. It is "overhung" from the near side of the machine, requiring no support or connection, at the off or grain side, consequently there is nothing to catch or hold lodged or tangled grain, or to interfere with its being laid regularly and evenly on the platform. It is also made much stronger by passing four pairs of "arms" around the shaft, bolting them at each end and in the middle, than by the ordinary plan of passing single arms through a mortise in the shaft. It is driven by a chain which runs on cogs on the pulleys, and cannot stop, as from the slipping of the ordinary belt or chain. This is of very great importance in cutting heavy, lodged or tangled grain, especially if cutting in the direction it leans. The Reel always brings it up if possible, when set in the proper position, and it is seldom necessary with our machine to carry the swath.

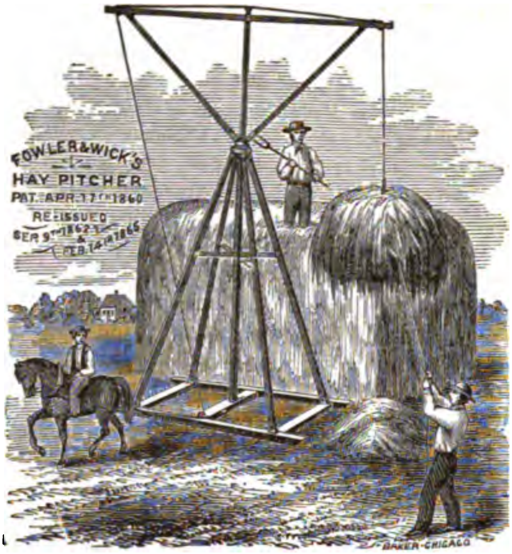
Third. The Cutter Bar. This we make of a plate of steel about one-fourth of an inch in thickness, folded in the form of the letter U, with the guards inserted in the open side and secured by one bolt to each. The result is, a hollow bar, of greater strength and stiffness than could be obtained in any other manner from the same weight of material, and further, the greatest possible convenience in replacing a guard accidentally broken.

Fourth. The Width of Cut. The sickle and knife are five feet long, which, with the gatherer on each side the machine, is capable of cutting about five and one-half feet, whereas ordinary two-horse machines cut but four to four and one-half feet. The difference, inasmuch as the draught is not heavy and does not impede the natural motion of the team, (and any ordinary team will draw the machine easily day after day,) is of great importance.

Fifth. The Position of the Driver. This is elevated, nearly over the main wheel, and he can, without inconvenience, overlook his work, and also more easily control his team.

Sixth. The Circular Platform and Automatic Rake. In the days when the Hussey Reaper was considered among the best, there being then few others of any kind, it was conceded that by no other machine could the grain be so neatly delivered from the platform, the raker throwing his rake over the grain and drawing it directly back behind the machine. The objection to this method was that the gavels were left in the track of the team as it came around for the next swath. By the use of the circular platform the grain is left in as good condition, and out of the way of the team in repassing. There has been no question as to the superior manner in which the gavels are left by this method over any other.

Warder, Mitchell & Co., Springfield, Ohio, New York Self-Raking Reaper combined, that is awarded the first premium, has the following good points, namely, the ground wheels are large and nearly opposite each other, and are broad on the face, making it light draught, easy to back or turn, or to be drawn over uneven ground, and the cutter bar, or if desirable the whole machine, may be raised so as to pass over all ordinary obstructions, and moved from field to field and farm to farm. The width of knife is five feet, and gathers five and one-half. By the use of the circular platform and automatic rake, the grain is left in good condition and out of the way of the team in repassing. The position of the driver is elevated above the main wheel, thus enabling him to overlook his work, and more easily to control his team.



FOWLER & WICKS' HAY PITCHING MACHINE.

This is what it is purported to be—a machine. Any horse hay fork can be used on . When the fork is placed in the hay on the ground or wagon the upper part of the machine (which is made to rotate) turns half around, and as the horse moves out, the hay is not only lifted up, but is at the same time carried around *over* the stack; and by the cross-beam extending out over the stack, and the swinging of the rope, the stacker is enabled to have the hay deposited any place on the stack he wishes. After the hands have had a few hours' practice, they will not find the least trouble in putting the hay (with the machine) anywhere they please, on any size stack or rick they may wish to build.

One of the advantages of this machine is, it does not *drag* your hay *against* the stack, but lifts it clear from any obstruction, and touches nothing till it falls from the fork on the top of the stack

The machine is portable. The same horse that lifts your hay, will haul it from stack to stack, or from one field to another, without taking down. When you are done using it, you can take it apart and put it in your barn.

In this machine, then, we have a *successful* and the *only* successful field machine for stacking hay or straw. It requires only two men, a boy and a horse, as represented in the cut, to work it. (See cut.)

SOME ADVANTAGES SPECIFIED.

First. They enable you to make your hay when it is just at the right stage of maturity, thus adding a large per cent. to its value.

Second. Your hay keeps better when put up with these machines.

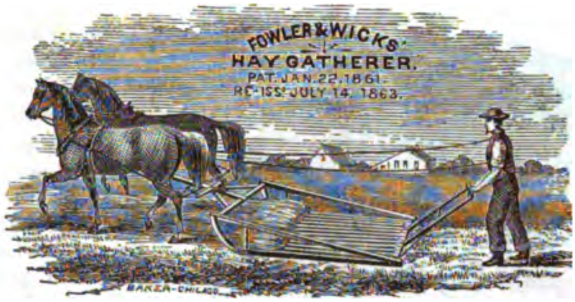
Third. They save all the labor and expense of cocking your hay.

Fourth. They save exposure to rain and sun, for with them you can put your hay in stack in less time than the same hands can put it in cock.

Fifth. They reduce the expense of harvesting to less than fifty cents per ton.

Sixth. You have no need to leave hay unstacked over night.

Seventh. You never need to mow in damp weather, in order to have time to get up your hay when it clears off, for three or four hours each afternoon is plenty time to put in stack all you can mow with a machine in the previous part of the day.


FOWLER & WICKS'
HAY GATHERER.
PAT. JAN. 22. 1861.
RE-ISS'. JULY 14. 1863.
BAKER-CHICAGO

HAY GATHERER.

Hauling hay on wagons or with ropes, is a slow process, and pitching it on to the stack or into the mow by hand, is not only slow but very hard work.

This is a machine especially designed for hauling hay to the stack, taking it out of the winrow. This can be done faster with this machine than by any other method. One team will haul more hay on it in a day than half a dozen horses can on wagons, sleds, or with ropes. It is easily worked, loading and unloading similarly to the revolving horse rake. Its capacity is from six to ten hundred pounds at a load.

Any person can use it with but very little practice. It leaves the meadow clean, requiring no raking after it. It is as much of a labor-saving machine as the horse rake.

We will now invite the attention of the farming community to the following facts, the result of careful and close observation. And we assert, without fear of contradiction, that a good Hay Gatherer will pay its cost in less time than one week in haying season; not including the great advantage and saving of time to the farmer, which is worth a great deal at this season of the year, and the great profit and benefit arising from his being able to save his hay in the best possible condition. Leaving this matter for himself to judge, and consider the vast profits arising from a good supply of the best of feed to winter his stock on, and for sale.

The Hay Gatherer is capable of delivering to the stack fifteen acres of hay per day, or twenty-two and a half tons, costing a farmer the labor of one man and team.

In the estimate we are about to make, we assume, as a basis to work, that one and a half tons of hay is a good crop; and that a man's labor is worth two dollars per day, his board forty cents per day, and his horse is worth fifty cents, or his team one dollar.

Thus: with one day's work, with the Gatherer, one man and one team, at a cost as follows:

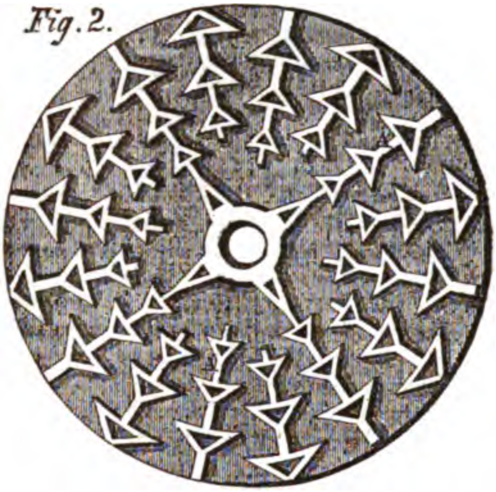
One man's wages per day	$2 00
" board "	40
One team per day	1 00
Total	3 40

He will deliver to the stack or rick, fifteen acres of hay, or twenty-two and a half tons per day.

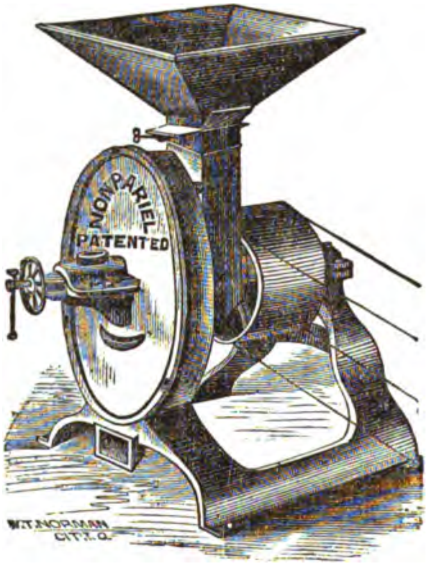
Now for the cost by hand labor:

Five men cocking, one day	$10 00
Five men's board, "	2 00
Four boys hauling, " at 75 cents	3 00
Four boys' board, "	1 60
One man hitching, "	2 00
One man's board, "	40
Four horses hauling one day	2 00
Total	21 00
Deduct the same work as done by the Gatherer	3 40
You find saved by the use of a Gatherer in one day	17 60

Fig. 2.



Running Plate driven by a Shoulder and Bolt in the Spindle, removable at pleasure; runs either way and self-sharpening.



THE NONPAREIL MILL.

Patented July 8, 1862, by J. Sedgebeer, inventor. Painesville, O.

On practical tests, the Victor Nonpareil Mills have exceeded all other iron mills for general grinding purposes, both for the farmer and the mechanic—for grinding, crushing and pulverizing purposes—being powerful, durable and simple mills, and not liable to get out of repair; enabling the farmer to do all his meal and feed grinding at home, thereby saving both time and toll in going to mill. These mills possess some new and valuable features not found in any other. The teeth are diamond and Y shape, and so constructed that each tooth, as it pulverizes, forces the meal or other substances towards the periphery and discharging edges, and does not depend upon the centrifugal force at all. The Corn and Cob Crusher being separate from the grinding plates, is more substantial, durable and effective; requiring less power than when cast on the plate; it also operates twice at each revolution. The journals have regular caps, and are on each side of the driving pulley, the lower end or supporting part being cast with the frame of the mill in one entire piece, giving it great strength and durability; is not liable to choke, runs in either direction, and can be instantly changed from grinding fine corn meal to cob and corn. The Nonpareil is adapted for fine grinding as well as for feed. Three sizes of these mills are of same shape and style.

Weight of ten inch mill, 160 lbs.; retail price, $40. Grinds from 3 to 6 bushels per hour. Weight of 13 inch mill, 240 lbs.; retail price, $55. Grinds from 4 to 10 bushels per hour, according to fineness and the power and motion applied. Runs 800 to 1000 revolutions per minute. Weight of 16 inch mill, 350 lbs.; retail price, $75—grinding from 5 to 20 bushels per hour, according to fineness and the power and motion applied. Runs 700 to 800 revolutions per minute.

The culture of the honey-bee has engaged the attention of intelligent and enterprising men of all ages, yet, within a few years, by the introduction of moveable frames and other improvements for bee-hives, old systems have been abandoned, and the pursuit of bee keeping—*always attractive*—has been rendered a safe and profitable business. In shape and depth of comb, the American Side-Opening Hive closely resembles the common box hive, and being the result of long experience and extensive research, is believed to be entirely free from objections, besides possessing many advantages which render it valuable. In the engraving, the bottom-board, A, projects in front of the hive, making a convenient alighting board, and being inclined, is kept clean by the bees during the working season.

THE AMERICAN BEE-HIVE.

By removing the entrance block, C, a large opening is made for brushing out litter in winter or early spring, and for hiving new swarms. By the use of the small slide, B, held in place by the same button, the entrance can be contracted, if necessary, to the admission of a single bee, thus effectually guarding a weak swarm from robbery and in moving bees the entrance is closed entirely by making the notches, *d*, *d*, in the slide correspond with the pillars, C, C. The hive is ventilated from below the bottom-board, the air channel being covered by the flap, *w*, on the outside, and by wire-screening below the bottom-board on the inside. This screening being away from the breeding apartment, is never waxed over by the bees. By turning the round flap so that the hole, *a*, may open into the breeding apartment, bees may be swarmed on the "*nucleus system*," securing to the new swarm a fertile queen without removing the old queen from the parent stock, or scarcely interrupting its labors. By this system a swarm can be drawn off from even a box hive or gum, and all loss of swarms by flight to the woods be prevented. The large observation glass in the back of the hive, gives a view of all the combs and is covered by the door, F, which is hung to the clamp above, and cannot tighten by damp weather. The cap, H (forming a perfect roof), is made large enough to fit loosely over the hive, and being supported by strips fastened upon its inside, excludes water and insects, and is easily removed without jar. The moveable side is inserted from above into rabbets, and is held in place by buttons. The hive is so constructed as to be firmly clamped on all sides, and will not warp though exposed to the direct rays of the summer sun. The moveable side being slightly shortened at the bottom, no bees are crushed in closing the hive. By thus opening the hive at the side, the frames are easily removed without injuring the combs, or irritating the bees, as in lifting them out at the top of the hive. The projections on the lower bars of the frames prevent them from swinging together, and hold them at an exact distance from each other, and from the walls of the hive, the construction of the frames being such that combs of the proper thickness are built true in them, and no place is left in the hive in which moths may deposit their eggs where they cannot be reached and removed by the bees.

TOOLS AND HOUSEHOLD IMPLEMENTS.

In this Class there were 50 entries. The awards were as follows:

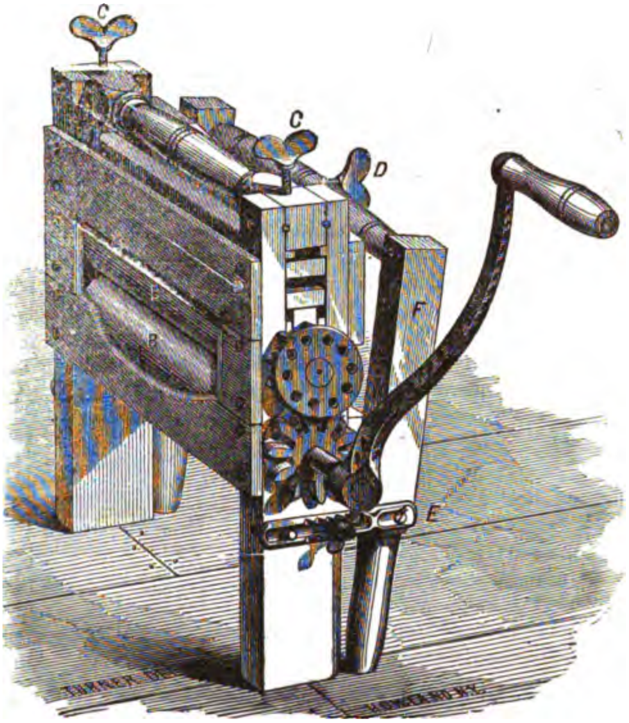
Best display of haying and harvesting tools, Hall, Brown & Co., Columbus	$5
" cheese press, L. C. Tanney, Westview	3
" churn, Dr. C. R. Gorgas, Wooster	2
" cabbage-cutter, Jno. Caldwell, Chillicothe	2
" washing machine, Jno. Danner, Canton	3
" clothes wringer, P. W. Gardner, Agent, Bristolville	2
" clothes-horse, to occupy the least space, H. A. Cummings, Springfield	2
" half dozen washboards, J. S. Lash, Philadelphia, Pa.	1
" well pump, Rockey & Link, Columbus	3
" apparatus for raising water, Thos. C. Hoffman, Ashtabula	2

Awarding Committee—JAMES McDOWELL, ADAM RITZ, JOHN DODDS, A. HOOVER, L. H. HUBBARD.

IN THE 18TH CENTURY.

19TH CENTURY, WITH DANNER'S MACHINE.

The advantages gained in the use of this machine are: 1st. Reducing the labor more than one-half. 2d. Clothes washed by this machine last one-half longer than when washed on a washboard. 3d. It is steam tight, so that the water keeps hot three times longer than in open machines. 4th. It protects the operator from constantly standing over a steaming tub, and exposing them to taking cold. 5th. It is light and portable, takes up no more room than an ordinary wash tub, and only weighs 30 pounds. 6th. It obviates the necessity of boiling clothes. 7th. It washes as many clothes at once as any other family machine in the market, however expensive they may be. 8th. A child ten years old can operate it; so that help can be employed that could not on a washboard. 9th. It is very cheap and durable. 10th. It makes no noise. 11th. Not a drop of water ever splashes out of the machine. 12th. It can be operated while sitting as well as standing. 13th. It has no complication, or detached pieces to get lost. 14th. The machine being a tub form will not leak; all box machines are liable to leak.



UNIVERSAL CLOTHES WRINGER.

This machine is adapted to save the labor and the wear and tear of garments which occur by wringing clothes by hand. It consists of a strong frame of hard wood, so constructed as to be easily fastened to a wash tub of any shape or thickness, and to hold two India rubber rolls These rolls (B B), when turned by a crank, allow the garments to pass between them, and expel the water from them as they pass, by simple pressure. The water falls back into the tub, and the clothes, made drier than is possible by hand wringing, drop into the basket.

To adapt it to garments of variable thickness, we depend partly upon the elasticity of the rubber in the rolls, and partly upon wooden springs placed above them. These insure the requisite elasticity for passing all the ordinary articles in a common family washing, from the size of a pocket handkerchief to a sheet. But to provide for wider extremes of thickness, as to press a small article very dry, or to increase its capacity for the passage of a large article, the thumb-screws at the top (C C) are so placed that a turn or two, which is rapidly and easily made, will effect the object.

The instrument is fastened to the tub by a clasping frame (F) standing parallel with its side and attached to it at a point, leaving its extremities free to move to or from. Setting the edge of the tub into the space between its lower extremity and the machine, it is made to pinch the tub as in a vise, by bringing its upper extremity outwards. This is done by two or three turns of a thumb-screw (D). Nothing can be more simple or more satisfactory. The clasping frame is attached to the wringer at a point by a sliding gauge (E), which adjusts it to a tub of any thickness from half an inch to two inches. A thumb-screw holds the guage precisely where it is set. This gauge, once set for a tub, needs no further handling so long as the wringer is used on that tub or one of like thickness; nothing being required to put it on or take it off but to turn the thumbscrew (D) at the top of the clasp. Thus two important points are gained in the simplest manner, viz., adjusting it to the thickness of the tub, and fastening and unfastening it.

But another important point is gained by cog-wheels. These are on the shafts of the rolls so as to insure the turning of both together. These are the main protection in cases of straining by the careless usage they are sure to meet continually in the hands of hired help.

The Universal Clothes Wringer rests its claims upon the following points: 1st. A strong frame of hard wood, firm and durable. 2d. Elasticity of the rubber rolls and wooden springs for ordinary purposes 3d. Thumb-screws for greater power or capacity, in extra cases. 4th. A clasping frame which fastens it to the tub by a few turns of a thumb-screw. 5th. An adjustable gauge which readily adapts it to a tub of any thickness. 6th. Cog-wheels, which insure the turning of both rolls together, saving the roll from rupture and the cloth from being torn; especially in the hands of careless hired help. 7th. The regulator, securing the efficiency of the cog-wheels when most required.

PRICES.

		Size of Rolls.		
No.		*Length.*	*Diameter.*	
1.	Hotel Wringer	11 in.	2¼ in.	$12 00
1½.	Large Family Wringer	11 in.	1⅞ in.	10 00
2.	Medium "	9½ in.	1⅞ in.	8 50
8.	Large Hotel "	14 in.	2¼ in.	18 00
18.	Laundry (to run by steam or hand)	17½ in.	2¼ in.	30 00
22.	Large Laundry " "	17½ in.	3⅛ in.	45 00

Manufactured by the Metropolitan Washing Machine Co., No. 32 Courtlandt Street, New York. R. C. BROWNING, General Agent.

CHURNING MATCH.

No.	Name.	Time.	Butter.
10.	Union Churn, Saffell & Baldwin, Tiffin	20 minutes.	2 lbs. 15 oz.
8.	Atmospheric Churn, I. M. West, Wilmington	17½ "	2 lbs. 15½ oz.
13.	Windmill Churn, J. B. Davison, Oberlin	17½ "	2 lbs. 15 oz.

REPORT OF COMMITTEE.

We find that the Windmill Churn gathered the butter in less time than either of the others. The quality of the butter very much the same—no appreciable difference; neither churning having been well worked.

Union Churn produced 2 lbs. 15 oz. of butter; Windmill Churn produced same quantity; Atmospheric Churn produced 2 lbs. 15½ oz. Atmospheric Churn produced butter in 17½ minutes; Windmill Churn produced butter in same time: Union Churn produced butter in 20 minutes.

GEO. W. ROBY,
GEO. B. SMITH,
Committee.

PLOWS.

In this Class there were 27 entries. The awards were as follows:

Best plow for general purposes, William Whitely, Springfield	$10
" stubble plow, Gibbons & Diemer, Columbus	10
' sod plow, William Whitely, Springfield	10

Best steel plow, William Whiteley, Springfield	$10
" subsoil plow, J. C. Evans, Delaware	5
" one-horse plow, " "	3
" dynamometer, " "	3
" display and greatest variety of plows, Barnett, French & Co., Urbana	10

REPORT OF COMMITTEE ON PLOWS.

The committee recommend that the Board offer a premium for the best plow team and the best plowman at the next annual Fair, and that suitable and ample preparation be made, and the time and place be given for trying plows at least as soon as 12 M. of the first day. The harrow from Cleveland that was at the match, is a good thing, and worthy of a premium.

TRIAL PLOW MATCH.

Entry.	Width of Share.	Width of Furrow.	Depth of do.	Draft.
No. 13, Gibbons & Diemer	11¾	13	8	600 lbs.
" 1, Barnett, French & Co.	11½	13½	8	675 "
" 26, Gibbs Bros. & Co.	11	14	8	675 "
" 27, J. Wilder & Co.	12	13¼	7¾	650 "
" 11, Wm. Whitely	12¼	14	8	600 "
" 10, same	11	14	7¾	550 "
" 15, Gibbons & Diemer	12¼	13	8	600 "
" 2, Barnett, French & Co.	11¾	14	8	675 "

Wm. Welch,
O. D. Hough,
Reuben Mitchell,
John Clark,
Wm. Gearhart,
Enos Raffenberger,
Awarding Committee.

VEHICLES.

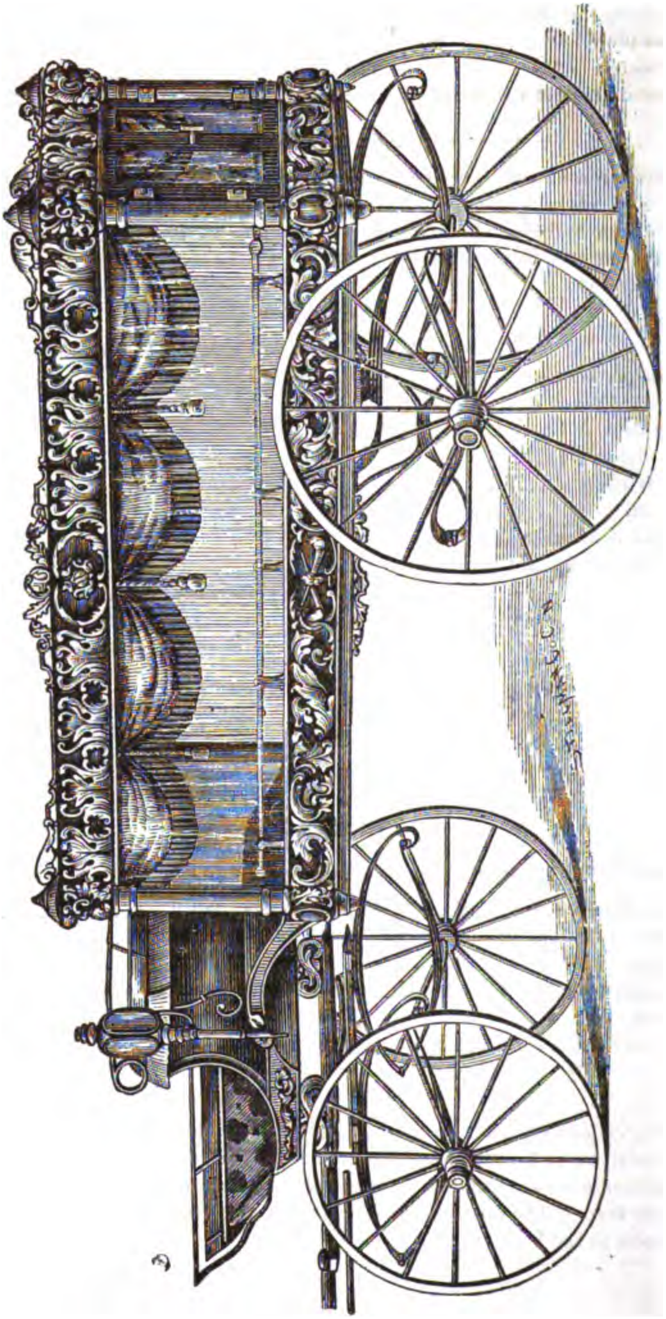
In this Class there were 18 entries. The awards were as follows:

Best two-horse family carriage, E. & H. F. Booth, Columbus	$20
" one-horse " " "	10
" top buggy, " "	10
" farm wagon for general purposes, Jno. McElroy & Son, Delaware	5
" jack-screw, " "	1
" carriage or cab for children, Denig & Ferson, Columbus	Silver Medal

REPORT OF COMMITTEE.

The Superintendent desires to express his thanks to Messrs. E. & H. F. Booth for placing on exhibition so beautiful and perfect a specimen of buggies and carriages, and takes great pleasure in securing the expressions of the committee in commending their work to public favor. The hearse owned by Taylor & O'Harra, is an ornament to the city and a credit to the builders.

R. R. Donnelly.
H. Bell,
R. P. Redick,
S. F. Moreханн,
Jared Forsman,
Awarding Committee.



HEARSE EXHIBITED BY TAYLOR & O'HARRA.

BURIAL CASE EXHIBITED BY TAYLOR & O'HARRA.

SEWING AND KNITTING MACHINES.

In this Class there were 23 entries. The awards were as follows:

Best knitting machine, E. P. Carpenter (agent for Dalton's machine), Pittsburg, Pa.	$5
Best sewing machine for manufacturing purposes, Fredk. Bell (agent for Grover & Baker), Columbus, O.	5
Best sewing machine for family use, F. Bell (agent for Grover & Baker), Columbus.	5

Awarding Committee—W. H. SAGE, W. HICKOX, Mrs. G. H. DICKERSON, Mrs. C. J. WETMORE.

MANUFACTURES.

SILK AND MILL FABRICS.

Best 10 yards of	woolen cloth, Alton Pope & Sons, Cleveland	$5
" "	cassimere, Columbus Woolen Manufacturing Co., Columbus	5
" "	satinet, " " "	5
" "	jeans, " " "	5
" "	tweed, " " "	3
" "	flannel, Alton Pope & Sons, Cleveland	3
" "	kersey, Columbus Woolen Manufacturing Co., Columbus	3
"	pair of woolen blankets, " " "	5
"	stocking yarn, " " "	3

Awarding Committee—L. L. RICE, JOAN RANSOM, Mrs. M. CHURCH.

NEEDLE, SHELL AND WAX WORK.

In this Class there were 127 enntries. The awards were as follows:

Best ottoman cover, Mrs. M. E. Carpenter, Columbus	$3
" table cover, Mrs. John H. Klippart, "	2
" fancy chair, work with needle, Mrs. Wm. H. Protsman, Columbus	3
" " cushion and back, Mrs. John H. Klippart, "	3
" crochet shawl, Miss E. S. Reed, Milford Centre	2
" lace cape, Mis Ada Van Deman, Delaware	3
" lamp-stand mat, Mrs. M. E. Somers, Pittsfield	2
" silk embroidery, Miss Sarah Armstrong, Columbus	3
embroidered sofa cushion, Miss Emma McClelland, Columbus	2

Best embroidered mantilla, Headley & Richards, Columbus	$3
“ “ lady's robe, Mrs. W. F. Griswold, Worthington	3
“ “ lady's dress, Wm. Lamb, Columbus	3
“ “ under sleeves, Miss, Ada Van Deman, Delaware	2
“ “ embroidered handkerchief, Mrs. John H. Klippart, Columbus	2
“ chenille embroidery, Mrs. Jno. W. Skiles, Columbus	3
“ embroidery with beads, Mrs. B. E. Smith, “	3
“ tetting collar, Miss Maggie A. Strang, Reynoldsburg	3
“ velvet bonnet, Miss J. H. Wilkie, Columbus	3
“ variety of linen embroidery, Mrs. Geo. Anderson, Painesville	3
“ group of artificial flowers, Miss Almira Babbitt, Newark	3
“ variety of “ Miss J. H. Wilkie, Columbus	3
“ worked collar, Miss Ada Van Deman, Delaware	2
“ worked vail, “ “	3
“ silk bonnet, Miss J. H. Wilkie, Columbus	3
“ specimen of wax flowers, Mrs. James Patterson, Columbus	2
“ group of “ “ “	3
“ specimen of cone work, Miss M. Miller, Pataskala	3
“ “ leaf work, Miss Emma McClelland, Columbus	4
“ “ shell work, Mrs. J. W. Lee, “	3
“ braid of straw or grass, Mrs. H. S. Babbitt, “	3
“ specimen of braid work, “ “	2
“ embroidered picture, Mrs. J. H. Klippart, “	3
“ white quilt, Miss Maggie A. Strang, Reynoldsburg	3
“ silk quilt, Mrs. W. H. Protsman, Columbus	3
“ patchwork quilt, Mrs. Nancy Meeker, Shadeville	3
“ child's afghan, J. D. Osborne & Co., Columbus	2

Awarding Committee—ALTON POPE, Mrs. A. H. GLEASON, J. B. KING.

HOUSEHOLD FABRICS.

In this Class there were 73 entries. The awards were as follows:

Best 10 yards jeans, Miss S. Trumbo, Hope	$5
“ pair of woolen blankets, Mrs. C. T. Pierce, Groveport	5
2d best “ Miss S. Trumbo, Hope	3
Best 10 yards flannel, “ “	5
“ “ linen, “ “	5
2d best “ “ Mrs. T. G. Barr, Columbus	3
Best 10 yards linen diaper, Mrs. Geo. Anderson, Painesville	5
“ “ kersey, “ “	5
2d best “ “ Mrs. T. G. Barr, Columbus	3
Best rag carpet (15 yards), Mrs. Church, Painesville	5
2d best “ “ Mrs. Geo. Anderson, Painesville	3
Best 15 yards tow cloth, A. G. Smith, Newberry	5
“ hearth rug, Mrs. C. K. Murphy, Lithopolis	5
2d best “ Mrs. M. E. Somers, Pittsfield	3
Best double carpet coverlet, Mrs. C. T. Piercy, Groveport	5
2d best “ Mrs. Chas. Osgood, Blendon township	3
Best pair of woolen knit stockings, Mrs. M. Church, Painesville	2
2d best “ “ Mrs. Esther Kelsey, Central College	1

Best pair of cotton knit stockings, Mrs. Lucinda Converse, Mantua	$2
2d best “ “ Mrs. M. E. Somers, Pittsfield	1
Best pound of linen sewing thread, Mrs. Geo. Anderson, Painesville	2
2d best “ “ Mrs. H. Ridenour, Gahanna	1
Best pair woolen fringe mittens, Mrs. M. Church, Painesville	2
Best pair of woolen mittens “ “	2
2d best “ “ “	1
Best pair of woolen stockings by Miss under 12 years, Mrs. R. H. Snowden, Westerville	2
Best worsted knit stockings, Mrs. C. K. Murphy, Lithopolis	2
“ stocking yarn, Mrs. M. Church, Painesville	2
“ palm-leaf hat, Mrs. H. S. Babbitt, Columbus	3
“ grass hat, “ “	3
“ gentlemen's shirts, Mrs. E. E. Stoolfire, Hebron	2
“ 10 lbs. dressed flax, Henry Ridenour, Gahanna	5

Awarding Committee—John A. Adams, Mrs. Dr. Gibson, Mrs. E. Broderick.

WORKED METALS.

In this Class there were 17 entries. The awards were as follows:

Best display of horseshoes, H. H. Chariton, Columbus	$2
“ “ silver ware, Wm. Blynn, Columbus	5
“ “ files, Hall, Stafford & Co. “	Silver Medal
“ horseshoe nails, H. H. Chariton, “	1

Awarding Committee—A. W. Maddocks, J. M. Thompson, David Price.

STOVES AND CASTINGS.

In this Class there were 14 entries. The awards were as follows:

Best cooking stove for wood, Aston & Rushmer, Columbus	$5
“ “ coal, “ “	5
“ parlor stove, J. M. Stuart & Co., Columbus	5
“ warming furnace or other apparatus, Aston & Rushmer, Columbus	5
“ cooking range, Aston & Rushmer, Columbus	5
“ parlor grate, J. M. Stuart & Co. “	3
“ specimen of marbleized stone, J. M. Stuart & Co.	5

Awarding Committee—R. L. Blair, W. J. Prall, Ohio F. Jones.

CABINET WARE.

In this Class there were 22 entries. The awards were as follows:

Best dressing bureau, Halm & Bellows, Columbus	$5
“ sofa, “ “	5
“ office chair, J. Strain, Delaware	2

Best set of parlor chairs, Halm & Bellows, Columbus	$5
“ center table, “ “	5
“ set of parlor furniture, “ “	10
“ display of furniture, “ “	10
“ seats and desks for schools, H. Lott & Son, Columbus	3
“ sick chair or couch, Bander & Haines, “	3

Awarding Committee—J. Park Alexander, A. Church, L. Grover.

WOODEN WARE.

In this Class there were 6 entries. The awards were as follows:

Best display of window shades, King & Cox, Columbus	$2
“ “ flour, pork and tight barrells, L. L. Gilliland, Dayton	

Awarding Committee—A. Church, G. Neilson, S. B. Connelly.

SADDLERS' AND SHOEMAKERS' WARE.

In this Class there were 29 entries. The awards were as follows:

Best traveling trunk, Hughes, Latham & Vandergriff, Columbus	$5
“ carpet sack, “ “ “	2
“ set of farm harness, Freedom Monroe, Romeo, Mich.	5
“ display of saddles and bridles, J. McBeth, Franklinton	5
“ pair of dress boots, Pierce & Kinsell, Columbus	2
“ “ heavy boots, T. J. Hartwell, agent, Boston, Mass.	2
“ “ gent's dress shoes, Pierce & Kinsell, Columbus	2
“ “ lady's gaiters, Geo. Clark, “	1
“ “ “ slippers, “ “	1
“ “ bootees, Pierce & Kinsell, “	1
“ display of hangings and borders, Randall & Aston, Columbus	3
“ “ ladies' furs, J. E. Rudisill, Columbus	3

Awarding Committee—Wm. Long, E. G. Bowe.

PHILOSOPHICAL AND SURGICAL INSTRUMENTS, &c.

In this Class there were 3 entries. The following is the award:

Best specimens of dentistry, Dunn & Emmons, Delaware	Diploma.

Awarding Committee—J. B. King, John Ransom, Christopher Houston.

CHEMICALS.

In this class there were 13 entries. The awards were as follows:

Best display of soap, R. Lewis & Son, Toledo	$2
“ “ candles, “ “	2
“ “ writing fluid, A. Sheets, Dayton	1

Awarding Committee—A. W. Livingston, Thomas D. Price, Eli Keller.

GLASS AND CROCKERY.

In this Class there were 6 entries. The following is the award:

Best sample of drain tile, J. W. Penfield, Willoughby	$5

Awarding Committee—J. Park Alexander, Joseph A. Roof, Lewis Baum, Wm. A. Neil, Jr.

MINERALS, FOSSILS, BIRDS, FISHES, &c.

There were 3 entries in this Class, to none of which were premiums offered on the premium list.

Awarding Committee—J. B. King, John Ransom, C. Houston.

FIELD CROPS.

In this Class there was one entry.

FLOUR AND GRAIN.

In this Class there were 35 entries. The awards were as follows:

Best two bushels white winter wheat, Geo. Anderson, Painesville	$10
" " red " same "	10
2d best " " " Philip C. Tussing, Canal Winchester	5
Best half bushel rye, Henry Ridenour, Gahanna	3
" " oats, George Anderson, Painesville	3
" " barley, R. Baker, Avon	3
" " buckwheat, Henry Ridenour, Gahanna	2
" " flax seed, M. S. Trumbo, Hope	3
" " timothy, A. G. Smith, Newberry	3
" " clover seed, A. W. Livingston, Reynoldsburg	3
" " yellow corn, O. Curtiss, Galena	2
2d best " " G. S. Innis, Columbus	1
Best " white corn, Charles Osgood, Blendon Corners	2
2d best " " A. R. Innis, Columbus	1

Awarding Committee.—A. Staley, A. R. Innis, Thos. Gorby.

CHEESE—(Domestic Manufacture.)

In this Class there were 5 entries. The awards were as follows:

Best cheese 1 year old and over, H. F. Giddings & Co., Lindenville	$10
Best and largest lot of cheese, S. E. & H. N. Carter, Painesville	20
2d best " " H. F. Giddings, Lindenville	10
Best cheese under 1 year old, S. E. & H. N. Carter, Painesville	10
2d best " " same "	5

REPORT OF COMMITTEE.

The sample of cheese 1 year old and over, shown by H. F. Giddings & Co., is well worthy of a first premium.

The cheese under 1 year old, shown by S. E. & H. N. Carter, was generally of finer and firmer texture and of sweeter flavor than those shown by H. F. Giddings & Co.; the fault appeared to be too free use of rennet, slighter acid, and put in press too warm.

A. Bartlett,
A. D. Hall,
J. S. Armstrong,
Awarding Committee.

CHEESE—(Factory Made.).

In this Class there were 6 entries. The awards were as follows:

Best and largest lot, S. E. & H. N. Carter, Painesville	$20
2d best " A. Bartlett, Fowler's Mills	10
Best cheese under 1 year old, A. D. Hall, Chardon	10
2d best " " A. Bartlett, Fowler's Mills	5

Awarding Committee.—P. Hitchcock, D. Robinson, Isaac Welsh.

SWEEPSTAKES ON CHEESE.

In this Class there were 3 entries. The following is the award:

For the best and largest display of cheese, S. E. & H. N. Carter, Painesville..Silv. Med.

REPORT OF COMMITTEE.

We (the committee) found great difficulty in deciding between the cheese shown by H. F. Giddings & Co. and S. E. & H. N. Carter; but from the large number (34) of all good cheese shown by the Messrs. Carter, we finally awarded the sweepstakes premium to them. And we desire to say that Messrs. Giddings & Co.'s cheese (four new and one old) are of a very superior quality in all respects.

Erastus Spencer,
John A. Prentice,
H. B. Perkins,
Awarding Committee.

J. H. Klippart, Esq., *Secretary Ohio State Board of Agriculture:*

Dear Sir,—In conformity with my promise to you at the late State Fair, I now proceed to give you a condensed account of the cheese factory business—its introduction, its advantages, its progress and prospects.

The necessity of some such system as the one at present in operation in this county, has long been felt; and so long ago as 1848 a system of cheese manufacturing was in operation in some parts of Trumbull and Ashtabula counties, and in the course of the next few years was largely extended.

The plan of operations under this system was briefly as follows: Some person or firm would erect suitable buildings and fixtures, and purchase the curds of the surrounding farmers, haul the curds to the factory and weigh them, paying a stipulated price per pound.

The practice was to take the curds thus collected and, with a suitable machine, cut them into slices about one-half inch in thickness, and then place them in a vat of water under which a fire was built, and the temperature raised to about 100 deg. Fahrenheit, when it was removed from the vat and run through a curd mill, which consisted of a box, on the inside of which were a number of small, thin blades of steel, and a cylinder of wood, also filled with blades, made to revolve within this box, leaving the pieces of curd about the size of kernels of corn. It was then weighed, and salted, and put into the press; the most common size of hoops being ten inches in diameter, cheese weighing from fifteen to eighteen pounds each. After being sufficiently pressed, they were removed from the press and a bandage of thin cloth put on them, with a cap neatly sewed on each end; they were then dipped into hot water, replaced in the hoop, and again submitted to pressure until the next day, when they were removed from the press and rubbed over with hot oil, and then carried to the curing rooms, placed upon shelves, turned over and rubbed as often as necessary.

This style of cheese is called "English Dairy," and the manufacture of it was quite generally introduced throughout the counties of Ashtabula, Geauga, Trumbull and Portage during the years 1849, 1850 and 1851, after which time it rapidly declined, the demand for this style of cheese proving to be quite limited; and upon the manufacture becoming general, the supply was found to be largely in excess. Prices consequently fell off, and in 1851 and 1852 it would not sell as readily nor as high as the ordinary dairy cheese.

Besides all this, the system had several radical defects, the chief of which was that the curds, being made by the several different farmers who furnished them, there was, of course, almost as many different qualities of curds as there were farmers furnishing them; and it is impossible to make a prime article of cheese from a curd that has been mismanaged during its first stages.

Still, the need was felt by dairymen of something different from the old routine. Improvement must be made in some direction. Cheese dairying, as it had been practiced in the farmers' families, was a laborious occupation, taxing the time and strength of farmers' wives and daughters, and gradually undermining their health: and the general inquiry was for improvement.

During the winter of 1851 and 1852 a movement was made in this county to form a Dairymen's Association for purposes of mutual improvement. An organization was effected, and the writer was appointed their corresponding secretary. Much information was gained; but the organization being imperfect, and premature, perhaps, as well, it did not result in any very marked improvements.

About this time (in 1849) the writer of this got up and put in successful operation the first improved cheese vat ever used in this county, and I believe the first ever got up with the attachment of a heater so constructed as to have perfect control of the heat. A drawing and description of this was published in the "Genessee Farmer" in 1851, and in the "Ohio Farmer" in 1852. This apparatus was largely introduced among the neighboring dairymen, and was considered a great improvement on the old method of making cheese.

In 1854, Mr. H. A. Roe, now of Madison, Lake county, introduced his celebrated "Western Reserve Cheese Vat," which, with the improvements since brought out by Mr. Roe, I must say I believe is second to no other cheese vat in use in the country.

During the decade from 1850 to 1860, a very decided improvement in the quality of cheese manufactured was plainly perceptible, and with the improved vats, presses and other fixtures, cheese-making had become more systematic and less laborious, and our cheese was selling in New York nearly as high as the best brands of New York State cheese. Still there was a difference; and believing as I did that the pastures of the Western

Reserve furnished just as sweet feed, and the milk produced from it capable of being manufactured into just as good a quality of cheese as that of any part of the State of New York, I determined to visit in person the celebrated dairy region of Herkimer and Oneida counties in that State, in order to obtain what information I might in relation to the matter. Accordingly, in the fall of 1861, I set out, accompanied by my wife, and on the recommendation of J. B. Leggett & Co., of New York, visited the justly celebrated dairies of Jesse Williams, Esq., and John O. Frazee, Esq., of Rome, N. Y.

Here and at this time I first encountered the idea of a cheese factory where the milk was carried to the factory, there to be manufactured into cheese, and to the late lamented Jessie Williams are we indebted for the introduction and practical development of the present system. Kind, affable and courteous to all, he sought no mystery, and had no secrets in regard to his profession, but carefully, and without ostentation, imparted to all who came to learn, all the information he possessed, pointed out to the novice difficulties which *he* had encountered, and which had taken years of study and toil to meet and overcome, freely, and, without money and without price, gave his counsel to the beginner in the business, thus enabling others to engage in it, and at once reap the success which it had required almost a life-time for himself to attain.

After examining the buildings, fixtures, &c., at the Frazee and Williams factories, and getting what information I could during a brief visit, I returned to Ohio, and in the spring following, opened and put in operation the first cheese factory in this State, on this system.

The whole thing was a novelty, not only in the mode of collecting the milk from the surrounding farmers and having it hauled to a central point for manufacture, but also the process of manufacture was new, the style of cheese produced being different from anything previously known in this State, and as a natural consequence attracted a great deal of attention. Visitors flocked in from all parts of our own and adjoining counties; all were gratified; and although some were skeptical, for the most part the feeling was unanimous that here was a vast improvement in cheese-dairying, and one destined, at no distant day, to work a radical reform in cheese-making throughout the length and breadth of the land.

All were agreed that the cheese produced was superior to anything which had ever before been produced in this State, and many were anxious to see the system introduced in their neighborhood.

Some of the cheese made in my factory were exhibited at the State Fair held in Cleveland, in 1862; and a full and detailed description of the process of manufacture, furnished by myself, was published in the next annual report of the Ohio Agricultural Society.

The advantages of this system over that of making cheese in farmers' families, are briefly these: The cheese produced is of a much more uniform character in style and quality—a poor cheese being very rare; and besides, the quality as a whole is equal to the very best private dairies, and much superior to the average of farmers' dairies; hence dealers and consumers prefer to buy factory-made cheese, even at a higher price; and the fact has been that factory cheese has sold at from two to three cents and even, in some instances, six cents per pound above the price paid for the *best* farmers' dairy in the State; this increase in price generally being fully equal to the expense of manufacture, thus leaving to the farmer full as much net cash as he would get if his cheese were made at home, and in many instances even more. The risk which the farmer has to encounter when he makes, cures and markets his own cheese, is no small item, as very many can testify, to their sorrow; and by this system, when the milk is delivered, the farmer runs no more risk, the factory man being responsible for all loss arising from imperfect cheese, or bad management.

Another and very decided advantage is gained by the very fact of being thus asso ciated together, all the best and most shrewd intellects of the whole patrons of a factory is combined and brought into action in marketing the cheese, and an influence is wielded much superior to what is possible by the single farmer in his own individual capacity. The factory brand soon becomes known in the principal markets, and cheese factory men have become a power whose influence is felt and acknowledged in the commerce and legislation of the country.

But perhaps the most decided advantage which the factory system presents over that of private dairies, is in the fact that the farmers' wives and daughters are thereby relieved of the toil and drudgery of making and taking care of the cheese at home. It is a well-established fact that the wives and daughters of our dairy farmers are more subject to premature loss of health and early decay, disease and death, than any other portion of the female population of rural districts And when we take a look at the dairy life of a dairy farm, and see the amount of severe muscular exertion necessary to perform the labor—the mopping and scouring, the scrubbing and scalding, and, as is generally the case, all the other work of the household attached, to be overlooked and frequently performed by one and the same person—all wonder that the dairy farmer's wife should become prematurely wrinkled, decrepit and old, ceases; and the wonder arises that any woman could be found who can endure so much as she actually does, even for a single season, to say nothing of a term of years, and retain even the semblance of health and strength. To the female portion of a dairying community, therefore, the cheese factory system is a perfect godsend, and many is the farmer's wife whom I have heard congratulating herself, where the milk is sent to the factory, on the freedom which she enjoyed from the painful toil and miserable drudgery of cheese making, together with the entire exemption from all its concomitant slops and foul odors.

And this fact alone, it appears to me, is sufficient inducement for every person keeping cows, who lives within reach of a cheese factory, to send his milk to it to be manufactured, although he might not get *quite* as much money, still he would have the satisfaction that he had relieved his wife and daughters of a vast amount of health-destroying toil, prolonged their lives and vigor, and promoted their happiness in the mean time.

Such being some of the advantages presented by this system over that of private dairies, it is no wonder that the communities were anxious for its introduction; inquiry was awakened and the spirit of improvement was abroad.

In the fall of 1862, E. Stanhope, Esq., of Bainbridge, A. D. Hall, Esq., and Burton Armstrong, Esq., of Claridon, in this county, and H. N. Carter, Esq., of Leroy, Lake county, and myself, together visited Oneida county, N. Y., for the purpose of getting what information we could in relation to the business.

During this trip, we visited the factories of Frazee & Crosby and Jesse Williams, in Rome; Squiers, in Delta; Saxton, in Lee; G. Weeks, in Verona; and Tanner's and Wilcox's, in Marcy.

A careful and minute examination was made and notes taken of the buildings and fixtures, and process of manufacture in those factories; and in the spring following, Mr. Stanhope erected and put in operation a factory in Bainbridge, Mr. Hall one in Claridon, Mr. Armstrong one in Claridon, Mr. Carter one in Lake county, and Mr. E. C. Cox one in Mesopotamia, Trumbull county. Jenks Budlong, of New York, had one in Chardon, and L. J. Randall also one in Chardon, in this county; making, with ours, eight in operation in the State in 1863.

At this present time there are in operation in this county eighteen factories, and in the adjoining counties of Lake, Ashtabula, Trumbull, Portage and Summit, about as many more, and will probably average one hundred tons of cheese each, which will sell at an average price of three hundred dollars per ton net, or in the aggregate one million two hundred thousand dollars; and all this great change has been produced in a little over three years, for, on the 29th day of April, 1862, the *first* factory cheese made by the present process in the State of Ohio, was manufactured at this factory.

In January, 1864, a convention of cheese manufacturers was held at Rome, N. Y., and an association formed, which was styled "The New York State Cheese Manufacturers' Association;" and the objects were mutual improvement, the diffusion of knowledge, and the collection of statistics in relation to the subject of cheese manufacture, and kindred subjects. This association held its second annual meeting at Utica, January 12th and 13th, 1865, and has published two annual reports, embodying a large amount of useful information to all who are engaged in cheese making, keeping and breeding cows, &c.

The officers of the association are, George Williams, of Oneida county, President; Jenks Budlong, New York city; A. L. Fish, Herkimer county; Geo. L. Morse, Madison county; Seth Miller, Lewis county; AshaelBurnham, Chatauqua county; David Hamlim, Jefferson county; N. G. Huntington, Erie county; Nehemiah Leach, Chenango county; A. Bartlett, Ohio, and Harvey Farrington, Canada, Vice.Presidents; and Wm. H. Comstock, of Utica, Secretary and Treasurer. Their third annual meeting will be held at Utica, on the second Wednesday in January, 1866.

An association of a similar character to the above was formed for this State, in February, 1864, and its second annual meeting was held in Chardon, on the 25th and 26th of January, 1865. The present officers of the association are, Burton Armstrong, of Geauga county, President; S. E. Carter, of Lake county; M. W. Stone, of Geauga county; W. J. Eldredge, of Portage county; Charles Petrie, of Ashtabula county; E. C. Cox, of Trumbull county; and H. A. Crain, Whitesboro, N. Y., Vice-Presidents; D. S. Hall, Chardon, Geauga county, Treasurer; A. Bartlett, Fowler's Mills, Geauga county, Corresponding Secretary, and S. R. Bartlett, Recording Secretary.

The next annual meeting of the association will be held in Cleveland, on the fourth Wednesday in January, 1866.

The question very naturally arises, Is this system of cheese factories likely to survive and become one of the permanent institutions of the country? In my opinion it will; for it is an improvement, and improvements never go backwards. It may, and no doubt will, be modified to meet advancing ideas, and to satisfy growing wants; but I would as soon think that farmers would reinstate the old cards, spinning wheel and loom in their households, for the manufacture of their cloth; or the flail and hand fan in their barns, for threshing and cleaning their grain; or the scythe, the sickle and the hand rake for harvesting his grass and grain, as that he would again subject his wife and daughters to the wearisome, health-destroying drudgery of *making the cheese.*

Furthermore, factory cheese has acquired a reputation in all the great cheese markets of the world, and we find that it heads the list in all the quotations of price current; a demand exists for it that is real and substantial; consumers call for it, and are satisfied with no other, although a much higher price is asked than for other styles, and to satisfy this demand, the article must and will be produced. Therefore, cheese factories must be kept in operation until something better is introduced.

It may be well to give the process pursued in the present factory system, in this connection, and probably a description of our own will be a good representative of the whole.

The factory buildings are: a workshop, 26 by 26 feet; a salt room, 10 by 22 feet; a press room, 12 by 40 feet; a boiler room, 12 by 15 feet; receiving room, 13 by 16 feet; and kitchen, 13 by 24 feet. These buildings all stand contiguous to each other, and are connected together. The curing house is 30 by 100 feet, three stories in hight, and will store for curing about 2500 cheeses of the size we are now making, viz: 15 inches in diameter and 10 inches high.

The milk is hauled to the factory in tin cans of different sizes, holding from 125 to 500 pounds of milk each, and are hoisted from the wagons by means of a crane and windless, and the milk dumped into the receiving cans, of which there are two standing on scales. It is then weighed, and by means of a gate, is let off through a tin conductor into the vats below. A careful account is kept of the milk delivered by each man every day. The vats are three feet six inches wide and sixteen feet long, and hold 5,000 pounds of milk each. There are four of them, standing in the workshop, made of tin, and each standing in a wooden vat, with a space around and under the bottom of the tin for water.

At night, when the milk is received, it is run into the vats and a stream of cold spring water set running into the wooden vat around the milk, which is left running all night to keep the milk cool and prevent it from souring, the milk being stirred for a while to hasten the cooling when first put in.

In the morning, the cream which has arisen on the milk is dipped off and poured back through a cloth strainer, and thoroughly mixed and incorporated with the milk; the morning milk is then added, and heat applied by running steam from the boiler into pipes in the water under the tin vat, and the temperature raised in warm weather to 82 degrees, and in cool weather to 84 or 86 degrees Fahrenheit. Extract of anotta is added, sufficient to give a golden cream color to the cheese, and prepared rennet sufficient to produce perfect coagulation in from forty to sixty minutes. The milk is then stirred up and thoroughly mixed for about ten minutes, and then kept stirred on the top to keep the cream from rising until it begins to thicken, which should not be less than fifteen nor more than twenty-five minutes from the time the rennet is added. It is then covered over with a cloth, and allowed to stand until the curd is sufficiently consolidated to begin work upon, which may be known by lifting a portion on the finger, and should have a compact feeling like good custard, and break with a clean fracture over the finger as it is lifted. A knife with twelve steel blades, three-fourths of an inch apart and twenty inches long, is put in perpendicularly and run through the vat each way, so as to divide the curd into columns three-fourths of an inch square, and then allowed to stand a few minutes, while the curd settles an inch or two and the whey rises on the top. The knife is then put in again and held at an inclination of 45 degrees, and drawn across the vat, beginning at one end and proceeding to the other; then reverse the inclination of the knife, and go through in the same way to the other end of the vat, thus dividing the columns of curd made by the first cutting.

One person then, on each side of the vat, goes to work and very slowly and carefully with their hands turns the curd over, bringing the bottom to the top; and as soon as the curd will move freely in the whey, the steam is let on and the temperature gradually raised to 88 or 90 degrees, all the while keeping the curd turning over, in order to keep the heating as uniform as possible—great care being taken not to let any portion of the curd settle and pack on to the bottom of the vat, and thus become over-heated, which, if allowed, will greatly injure the cheese. After the heat is cut off, the curd is kept stirred up until it becomes sufficiently compact in the particles not to pack and adhere together when left to settle. It is then allowed to settle, and a cloth strainer is spread over the vat, a siphon inserted and the whey drawn off, leaving only enough to cover the curd. A wide board, just long enough to reach across the vat, and full of holes, is then put in on the strainer, beginning at one end of the vat, and pressed down as hard as two persons (one on each side of the vat) can press it, and thus proceed to the other end of the vat, pressing down all the curd alike. The strainer is then removed and the curd pressed down with the hands, giving it a quick, strong pressure, and going carefully over the whole. Keep repeating this operation until the curd becomes separated and will flow freely about in the whey; then put on the steam; keep the curd stirred to heat evenly; raise the temperature to 94 or 96 degrees, but be sure and not have it go above 96 at any time. Keep it stirred enough to prevent it from packing together and let it stand for the development of the acid.

The development and action of the acid must be kept in view throughout the whole process, for the quality and flavor of the cheese depends almost entirely upon how this is attended to. When the acid is sufficiently developed, the curd is dipped out into a sink on a cloth strainer, and when sufficiently drained, salt is added at the rate of three pounds for each thousand pounds of milk used. The drainer stands on wheels, and is now run into the press room and the curd dipped into the hoops, (which are 15 inches in diameter and 16 inches deep) and put in the presses. For pressing, a stout wrought iron screw is used; the cheese is pressed gently at first, and the pressure gradually increased; and after being pressed about an hour, are taken from the press, and a bandage of bleached cloth is put upon it, and then replaced in the press with a cap of stout cloth on each end, and the pressure applied until the next day, when it is removed from the press, the caps taken off, and the bandage turned back over the corners, and if any edge is pressed up by the follower not exactly fitting in the hoop, this is neatly and evenly trimmed off, a coating of grease applied, and the bandage plaited down neatly. It is then placed on what is called a "turning cover," which is like a common cheese box cover, planed on the inside, and then carried to the curing house, when it is turned and rubbed every day until cured, which takes from twenty to thirty days.

After the cheese is sold, the cost of salt, bandage cloth, rennets, annotta and cheese grease, together with the commission of the manufacture, which is generally one-tenth of the amount of sales, is deducted, and the net cash is then divided pro rata among those who have furnished the milk, according to the amount of milk furnished by each in proportion to the whole amount.

The whey is run off, a long distance from the factory, into a large wooden vat, from which it is fed mostly to hogs. We have fed, during the past season, about fifty calves on whey, and we are very much gratified with our success, having made some very nice calves; and I think it pays better than feeding to hogs.

It will be seen by the foregoing that the manufacture of cheese is systematized, and that the whole process is one of order and precision; and that cheese makers are taking an active interest in ascertaining and adopting all the latest improvements of the age in their business. And it is believed that the time is not far distant when American made cheese will possess a world-wide reputation; and I know not why it should not become as justly celebrated as the wines of Johannesberg, the porcelain of Sevres, or the shawls of Cashmere.

In writing the foregoing history of the introduction of this system of cheese making into Ohio, I have been obliged to say considerable of what I have done myself, and hope that you will excuse what may appear egotistical; and believe me that I have not paraded my own acts from any motives of foolish vanity, but have written merely as a faithful chronicler of facts.

A. BARTLETT.

FOWLER'S MILLS, Geauga Co., O., Oct. 14, 1865.

BUTTER, BREAD, &c.

In this Class there were 24 entries. The awards were as follows:

Best 10 lbs. roll butter, Mrs. D. M. Slyh, Columbus	$10
2d best " " Andrew Havens, Lewis Centre	5
Best tub or firkin butter (50 lbs.), Andrew Havens, Lewis Centre	10
" 4 loaves baker's bread, Jacob Duss, Columbus	3
" biscuit, Mrs. Geo. M. Parsons, "	2

Best 3 loaves domestic white bread, Mrs. G. S. Innis, Columbus	$3
" domestic corn bread, Mrs. W. R. Sprague, Reynoldsburg	3
" " rye bread, " "	3
" " brown bread, " "	3

Awarding Committee—J. S. Armstrong, Mrs. V. M. Wright, Mrs. Goodman.

ANDREW HAVEN'S STATEMENT.

Fifty pounds of butter made from the milk of seven cows. Strained in tin pans; let stand from thirty-six to forty-eight hours, according to temperature of the weather; then skimmed the cream off and churned in a dash churn; the butter was then taken from the churn and washed in cold spring water; one ounce of Ashton factory salt to one pound of butter. Churned in the morning. After working in the salt, let stand twenty-four hours, then worked out the whey, and packed.

Mrs. D. M. SLYH'S STATEMENT.

This is to certify that this butter was made from the milk of four cows. The milk was skimmed before coagulating, and churned in a common dash churn. The butter was not washed; the milk worked out with a paddle. There is nothing in the butter but fine salt.

R. BAKER'S STATEMENT.

My butter was made from two cows, from 14th to 24th June. Cows fed on grass only; milk strained into tin pans, and remained thirty-six hours; then skimmed, and the cream churned in Colman's patent churn; used 1¼ ounce of Liverpool salt to one pound of butter. The buttermilk was separated with a ladle; no water used

Avon, Lorain Co.

HONEY, PRESERVES, &c.

In this Class there were 215 entries. The awards were as follows:

Best 10 lbs. honey, Edwin Corner, Columbus	$5
2d best " Robert Paul, Gahanna	3
Best canned tomatoes, Mrs. Sarah McCormick, Columbus	3
" " blackberries, Mrs. H. Innis, "	3
" " raspberries, Chas. Osbourn, Blendon Corners	3
" peaches, Mrs. M. Miller, Pataskala	3
" " pears, M. S. Dyer, agent, New York city	3
" " apples, Mrs. A. McCollister, Circleville	3
" " quinces, Mrs. J. W. Durrett, Beckett's Store	3
" " cherries, " "	3
" " gooseberries, Mrs. W. R. Sprague, Reynoldsburg	3
" " currants, " J. W. Durrett, Beckett's Store	3
" " grapes, " Sarah McCormick, Columbus	3
Largest and best variety of canned fruits, Mrs. J. W. Durrett, Beckett's Store	10
" " pickles, Mrs. W. R. Sprague, Reynoldsburg	10
" " jellies, Mrs. Benj. Conrad, Hillsboro	10
" " preserves, Mrs. W. R. Sprague, Reynoldsburg	10
Best apple jelly, Mrs. R. R. Dickey, Dayton	3
" currant jelly, Mrs. E. Ratcliff, Zanesville	[illegible]
" peach jelly, Mrs. R. R. Dickey, Dayton	[illegible]

Best quince jelly, Mrs. R. R. Dickey, Dayton	$3
“ preserved qunices, Mrs. A. W. McCollister, Circleville	3
“ “ peaches, Mrs. R. R. Dickey, Dayton	3
“ “ pears, Mrs. A. McCollister, Circleville	3
“ “ apples, “ “	3
“ “ plums, Mrs. G. W. Shapley, Columbus	3
“ tomato catsup, Mrs. A. McCollister, Circleville	3
“ cucumber catsup, Mrs. W. R. Sprague, Reynoldsburg	3
“ pickled cucumbers, Mrs. E. McClelland. Columbus	3
“ “ peaches, Mrs. R. R. Dickey, Dayton	3
“ “ tomatoes, Chas. Osborn, Blendon Corners	3
“ “ mangoes and melons, Chas. Osborn, Blendon Corners	3
“ “ onions, Mrs. H. Innis, Columbus	3
“ “ gherkins, Mrs. W. R. Sprague, Reynoldsburg	3
“ specimen of portable soup, “ “	3

REPORT OF COMMITTEE.

Mrs. Ratcliff exhibited the following jellies: Currant—white, red and pink (Cohen's Currant) Raspberry—white and red, and variegated currant. Her jellies were remarkably fine, and worthy of the highest praise, and the committee regret that, under the rules and her entries, they could only award her one premium. The committee suggest that premiums should be offered on a greater variety of jellies.

Mrs. G. H. Hoffman,
Mrs. Mary Webster,
Mrs. Mary A. Goodman,
Mrs. S. A. Armstrong,
Awarding Committee.

SUGAR, Etc.

In this Class there were 21 entries. The awards were as follows:

Best Sorgho Mill, John L. Gill & Son, Columbus, O	$10
2d best “ Clark & Utter, Rockford, Ill	7
Best Sorgho Evaporator, Elias Jewett, Chicago, Ill	20
2d best “ J. L. Gill & Son, Columbus, O	10
Best 10 pounds of Sorgho Sugar, O. M. Babcock, Chicago, Ill	20
Best gallon Sorgho Syrup, W. R Sprague, Reynoldsburg, O	10
2d best “ “ C. Jacobs, Columbus, O	5
Best gallon Maple Syrup, H. H. G. Smith, Toledo, O	5
Best 10 pounds Maple Sugar, Mrs. W. R. Sprague, Reynoldsburg, O	5

Awarding Committee on Sorgho Mills and Evaporators.—G. S. Innis, J. C. Evans, Joseph Chenawith, T. P. Johnston, J. Worthington.

Awarding Committee on Sugar and Syrup.—G. S. Innis, R. C. Moore, Susan Walker, Casintha Hough, S. L. Holten, A. Webster.

REPORT OF COMMITTEE ON SORGHO MILLS AND EVAPORATORS.

Your committee examined with some care, under actual test, the following mills: Entry No. 6, Clark's Sorgho Machine Company, Cincinnati—a horizontal mill. About this mill there is too much machinery to keep in repair and oil; too much danger of breakage and delays.

Entry No. 11—Clark & Vetter, Rockport, Ill.—is an excellent machine. It is large enough to take in all the cane the team can easily crush; strong enough, with a little to spare, to resist the utmost strength of an ordinary team; has good boxes and smooth bearings, which are surely and easily reached with oil. The weight of the rolls, too, is supported on the ends of the shafts so as not to touch the top or bottom plate, and easily adjustable. It is also easily taken apart to replace or repair boxes, or other worn out parts.

Entry No. 18—John L. Gill & Son, Columbus—has all of the above excellencies in an equal degree. It also leaves the bagasse, as it leaves the mill, a little dryer, if any difference, than either of the other mills. It has the advantage of having its cogs on separate pieces from the rolls, so that if one or more should be broken, they could be replaced with ease, and with but little more delay than a farmer would require to replace a broken or worn out plow share. This is not the case with Entry No. 11, which are fast to the rolls, and should the cogs become broken, the whole roll would have to be renewed, causing considerable more expense and much loss of valuable time. The exit of the juice from both these machines (Nos. 11 and 18) is good; but their means for catching it is somewhat faulty. As the stalks are crushed, the juice that spurts out frequently flies over, for the want of a proper guard or width of bottom, thus causing, as seems to your committee, an unnecessary waste.

Under all the circumstances, we awarded to Entry No. 18 the first premium, as combining more desirable qualities than either of the other mills on exhibition. To Entry No. 11 we awarded the second premium.

SORGHO EVAPORATORS.

On these there was somewhat of a sharp competition and trial. The trial was not as full and fair as your committee could have desired. The committee were informed, upon receiving instructions before proceeding to our work, that each evaporator must produce, under the inspection of the committee, at least one-half barrel of syrup, and that John L. Gill had agreed to find the cane in sufficient quantity to enable each exhibiter to do this. For some cause he found himself unable to comply with this agreement till the afternoon of the last day of the Fair. It was then too late to make the trial as required by the rule of your Board. Consequently your committee awarded no premiums, but had as careful an examination as our time would allow, and would submit the following report:

That all the Evaporators exhibited to your committee, except Entry No. 20, Steam Coil Evaporator, Elias Jewett, Chicago, Ill.; Entry No. 17, John L. Gill & Son, Columbus, Jacob's Evaporator, and Entry No. 7, Blymer, Bates & Day, Mansfield, Ohio, Cook's Evaporator, were no better than ordinary square pans that any clever workman can manufacture, and therefore unworthy of mention.

The contest between Jacob's (No. 17) and Cook's (No. 7) Evaporators was spirited, close and interesting. Their manner of evaporating the first three-fifths of the water contained in the juice is much the same. Jacobs' has a finisher into which he then puts his juice. Under this he makes his fire more moderate, and with sufficient care it would not be scorched. One or more finishers, too, might be added. Cook's, as is well known, receives the crude juice at one end in a continual stream, and discharges the syrup at the other in a like stream. Your committee thought that perhaps a little of crude juice might pass the entire length of the evaporator, thus giving a little unpleasant taste to their syrup; or, in other words, accounting for a little more of the crude taste remaining in their syrup than in the syrup evaporated on Jacob's Evaporator. In this, however, the most desirable part of all, they were both beaten by Entry No. 20, Steam Coil Evaporator, E. Jewett, Chicago, Ill. But this could not be worked to advantage except in large manufactories, or by those owning steam engines.

For ordinary farmers' use, your committee would, therefore, give the first preference to Entry No. 17, Jacob's Evaporator, and the second to Entry No. 7, Cook's Evaporator: expressing, however, at the same time, the opinion that for large manufactories that will supply sorgho syrup or sugar in sufficient quantities to make either of them an article of general commerce, resort will finally be had to steam.

Respectfully submitted,

G. S. Innis,
J. C. Evans,
Joseph Chenowith,
T. P. Johnson,
J. Worthington,
Committee.

VEGETABLES.

In this Class there were 161 entries. The awards were as follows:

Best half bushel Neshannock potatoes, Henry Ridenour, Gahanna	$3
2d best " " " G S. Innis, Columbus	1
Best " Peach-blow " Jno. Stimmel, Jr., Columbus	3
2d best " " " J. A. Gray, "	1
Best " any other variety of potatoes, Jno. Kelley, Cleveland	3
Best and greatest variety of Irish potatoes (½ peck each), G. S. Innis, Columbus	5
" half bushel sweet potatoes, Jno. Kelley, Cleveland	3
" 12 parsnips, Jno. Kelley, Cleveland	2
" 12 carrots, " "	2
" 6 long blood beets, G. S. Innis, Columbus	2
" 6 turnip beets, " "	2
" 6 sugar beets, Jno. Kelley, Cleveland	2
" display, in variety and quality, of beets, G. S. Innis, Columbus	3
" peck of tomatoes, Edward Jaeger, Columbus	2
2d best " John Crosser, "	1
Best display, in variety and quality, of tomatoes, A. W. Livingston, Reynoldsburg	3
" 6 drumhead cabbages, John Kelley, Cleveland	2
" 6 heads of red Dutch cabbage, Jno. Kelley, Cleveland	2
" 6 heads of any other variety, G. S. Innis, Columbus	2
" 3 heads of cauliflower, " "	2
" 3 heads of broccoli, " "	2
" 6 heads of lettuce, " "	1
" half peck of red onions, C. C. Norton, Columbus	1
" " yellow onions, Jno. Kelley, Cleveland	1
" " white onions, M. McMillen, Toledo	1
" display, in variety and quality, of onions, M. McMillen, Toledo	3
" half peck of peppers for pickling, Edward Jaeger, Columbus	1
" display of peppers, in variety and quality, Jno. Kelley, Cleveland	1
" 12 roots of salsify, Jno. Kelley, Cleveland	1
" 6 stalks of celery, Edward Jaeger, Columbus	2
" 3 marrow squashes, Jno. Kelley, Cleveland	2
" 3 Hubbard " " "	2
" 3 crook neck " A. W. Livingston, Reynoldsburg	2
" display of squashes, in variety and quality, A. W. Livingston, Reynoldsburg	4
" " pumpkins, in variety and quality, T. G. Barr, Columbus	3

Best dozen of green sweet corn, John Kelley, Cleveland	$2
" display of green or dry corn, in variety or quality, G. S. Innis, Columbus	3
" 3 mountain sweet water-melons, W. R. Sprague, Reynoldsburg	2
" 3 water-melons of any other variety, " "	2
" 3 green-fleshed musk-melons, John Kelley, Cleveland	2
" 3 yellow " " W. R. Sprague, Reynoldsburg	2
" display of water-melons and musk-melons of all varieties, W. R. Sprague, Reynoldsburg	5
" 6 cucumbers, W. R. Sprague, Reynoldsburg	1
" half peck Lima beans, in pod, W. R. Sprague, Reynoldsburg	2
" " pole beans, other than Lima, in pod, Mrs. J. W. Durrett, Beckett's Store	2
" half peck of garden peas, dry, A. W. Livingston, Reynoldsburg	2
" and greatest variety of peas, dry, " "	2
" 3 purple egg plants, Jno. Kelley, Cleveland	2
" and greatest variety of vegetables raised by one exhibiter, J. Kelley, Cleveland	10

REPORT OF COMMITTEE.

The committee recommend higher premiums in order to bring out a larger display of vegetables; also a second premium on all vegetables We further recommend a premium of five dollars for the largest French squash. The display of vegetables was rather small, but of good quality.

D. C. Richmond.
E. S. Willard,
Samuel Creswell,
Awarding Committee.

FLOWERS.

STOVE AND GREEN-HOUSE PLANTS—PROFESSIONAL LIST.

In this Class there were 37 entries, The awards were as follows:

Best collection, 20 varieties, R. G Hanford, Columbus	$15
2d best " 20 " Wm. Heaver, Cincinnati	10
Best " 12 " " "	8
2d best " 12 " R. G. Hanford. Columbus	5
Best specimen plant in or out of bloom, R. G. Hanford, Columbus	3
" 10 varieties variegated leaved plants, " "	5
2d best " " " Wm. Heaver, Cincinnati	3
Best single specimen, R. G. Hanford, Columbus	1
" collecton of aloes and cactus'; in pots, R. G. Hanford, Columbus	2
" " geraniums in bloom, " "	3
" " gloxinias and achimenes, " "	2
" " ferns and lycopodiums, " "	3
2d best " " " Wm. Heaver, Cincinnati	2

CUT FLOWERS.

Best collection of 24 named varieties of dahlias, Jno. Underwood & Co., Columbus.	5
2d best " 24 " " Wm. Heaver, Cincinnati	3
Best " 12 " " Jno. Underwood & Co., Columbus.	3
2d best " 12 " " Wm. Heaver, Cincinnati	2

Best and largest collection of named roses, Wm. Heaver, Cincinnati	$5
2d best " " R. G. Hanford, Columbus	3
Best 12 named roses, Wm. Heaver, Cincinnati	3
" and largest collection of verbenas, named, Wm. Heaver, Cincinnati	3
2d best " " " R. G. Hanford, Columbus	2
Best and largest 12 verbenas, named, Wm. Heaver, Cincinnati	2
2d best 12 " " Jno. Underwood & Co., Columbus	1
Best and largest collection of phloxes, R. G. Hanford, Columbus	2
Best display of gladiolus, Wm. Heaver, Cincinnati	3
" and greatest display of cut flowers other than above, Wm. Heaver, Cincinnati	5
2d best " " " R. G. Hanford, Columbus	3
Best pair of parlor boquets, Wm. Heaver, Cincinnati	2
2d best " Jno. Underwood & Co., Columbus	1
Best pair of hand boquets, Wm. Heaver, Cincinnati	2
2d best " R. G. Hanford, Columbus	1

Awarding Committee—A. B. BUTTLES, JOHN GRAVITT, A. H. GLEASON, BALDWIN GWYNNE.

STOVE AND GREEN-HOUSE PLANTS—AMATEUR LIST.

In this Class there were 55 entries. The awards were as follows:

Best collection, 12 varieties, Adam Wiesbaker, Columbus	$8
2d best " " W. R. Sprague, Reynoldsburg	5
Best specimen plant, T. W. Tallmadge, Columbus	3
" 10 varieties of variegated-leaved plants, T. W. Tallmadge, Columbus	5
" single specimen, T. W. Tallmadge, Columbus	1
" collection of aloes and cactus', in pots, Jno. Crosser, Columbus	2
" " geraniums in bloom, T. W. Tallmadge, "	3
2d best " " Adam Wiesbaker, "	2
Best " ferns and lycopodiums, T. W. Tallmadge, Columbus	3
2d best " " W. R. Sprague, Reynoldsburg	2
Best and largest variety of petunias, in pots, Clara McClelland, Columbus	2

CUT FLOWERS.

Best and largest collection 24 named Dahlias, John Kelley, Cleveland	5
2d best " " " Mrs. M. Church, Painesville	3
Best and largest collection 12 named Dahlias, same "	3
2d best " " " John Kelley, Cleveland	2
Best and largest collection of named Roses, Mrs. M. Church, Painesville	5
" " " Verbenas, same "	3
Best 12 Verbenas, Mrs. M. Church, Painesville	2
Best and largest collection of named Phloxes, Mrs. W. R. Sprague, Reynoldsburg	2
2d best " " " Mrs. M. Church, Painesville	1
Best display of Asters, Mrs. W. R. Sprague, Reynoldsburg	2
" " Gladiolus, Mrs. M. Church, Painesville	3
" " Coxcombs and Amaranths, Mrs. W. R. Sprague, Reynoldsburg	2
2d best " " " Mrs. M. Church, Painesville	1
Best and greatest display of cut flowers, other than above, Mrs. M. Church, Painesville.	5
2d best do., Mrs. W. R. Sprague, Reynoldsburg	3

Best pair of Parlor Boquets,	Miss Clara McClelland, Columbus	$2
2d best " "	Mrs. W. R. Sprague, Reynoldsburg	1
Best pair of Hand Boquets,	Mrs. Mary Wharton, Columbus	2
2d best " "	Mrs. A. Houston, Columbus	1

SWEEPSTAKES ON FLOWERS—OPEN TO ALL.

Best Floral Ornament,	Mrs. Mary Eberly, Columbus	$5
2d best "	Mrs. G. M. Parsons, Columbus	3
Best basket of Flowers for table,	R. G. Hanford, Columbus	3
2d best " "	Mrs. Geo. M. Parsons, Columbus	2
Best Hanging Basket of Growing Plants,	same "	3
2d best " "	R. G. Hanford, "	2
Best Design of Living Plants,	T. W. Tallmadge, Columbus	5

REPORT OF COMMITTEE.

The committees awarding premiums for amateur list and sweepstakes on Flowers, recommend the premiums as above, and especially that a premium, equal to that of Floral Ornament, be awarded to the large basket as a Design of Living Plants, shown by T. W. Tallmadge, for which no premium is advertised, and as the article was ruled out as a Floral Ornament, for which it was entered.

Mrs. B. Gwynne,
Mrs. A. D. Rodgers,
Mrs Geo. B. Wright,
Committee.

APPLES.

In this Class there were 14 entries. The awards were as follows:

Best 10 varieties, 5 each,	J. W. Ross, Perrysburg	$10
2d best " "	D. C. Richmond, Sandusky	5
Best 6 varieties of summer and fall,	James W. Ross, Perrysburg	5
" " winter,	same "	5
Best arranged basket of 10 varieties, ½ bushel,	James W. Ross, Perrysburg	5
2d best " " "	D. C. Richmond, Sandusky	3
Best display of 24 varieties, in quality and variety,	J. W. Ross, Perrysburg	15
2d best " " " "	D. C. Richmond, Sandusky	10

Awarding Committee.—W. E. Mears, H. H. G. Smith, Morris Evans, W. S. Imlay.

LIST OF APPLES EXHIBITED BY J. W. ROSS.

Am. S. Pearmain,
Autumn Swaar, sweet,
Baldwin,
Baily Sweet,
Baltimore (of Elliot) American Beauty,
Bellflower, yellow,
Bellflower, sweet,
Belmont,
Blue Pearmain,
Cogswell,
Colvert,
Danver's Winter Sweet,
Detroit Red,
Dominie,
Duchess of Oldenb'rg,
Dyer, or Pomme Royal,
Fallawater, (Tulpehocken,)
Fall Jennetting,
Fall Orange,
Fall Pippin,
Fall Queen of Ky.,
Fall Wine,
Fameuse,
Fort Miami,
Gilpin, or Romanite,
Am. Golden Russet,
Gravenstein,
Green Sweet,
Grimes' Gold. Pippin,

Hawthornden,
Higby Sweet,
Holland Pippin, or Summer Pippin,
Hubbardson Nonsuch,
Jersey Sweet,
Jonathan,
Kaigns' Spitzenberg,
Keswick Codlin,
King, of T. Co.,
Ladies' Sweet,
Lady Apple,
Lyman's Pumpkin Sweet,
Maiden,s Blush,
May of Myers,
Newtown Pippin, yellow,
Newtown Pippin, green,
Northern Spy,
Old Nonsuch,
Ortley,
Paradise Winter Sweet,
Peck's Pleasant,
Pomme Grise,
Porter,
Primate,
Rambo,
Rhode Island Greening,
Roman Stem,
Rome Beauty,
Roxbury Russet,
Saint Lawrence,
Smith's Cider,
Smoke-house,
Sops of Wine,
Spafford Russet,
Spitzenberg Esopus,
Strayer's Seedling,
Summer Queen,
Swaar,
Sweet Swaar,
Talman Sweet,
Twenty Oz. Apple,
Vandervere, of N. Y., or Newtown Spitzenberg,
Wagener,
Westfield Seek-no-further,
White Pippin,
Wine Sap,
Ohio Greening,
Granny Winkle,
Cheesebury Russet,
English Codling,
Indian Seedling,
Flushing's Spitzenburg,
Winter Strawberry,
Green Pippin,
Sweet Rambo,
Steele's Red,
Vandavere's Pippin,
Cranberry Russet,
Pennock,
Reinette,
English Russet,
Herfordshire Pearmain,
Russet Greening,
London Pippin,
Dutch Codlin,
Red Gillflower,
Black Gillflower,
Yankee Sweet,
Cracking,
Sour Bough,
Late Strawberry,
Summer Gillflower
Hawley,
Red Bellflower,
Sweet Bellflower,
Romanite,
Newtown Spitzenburg,
Cabushea,
Pound Apple,
Oregon Greening,
Drap D'Or,
Gloria Mundi,
Republican Pippin,
Autumn Sweet Bough,
Peach Pond Sweet,
Autumn Pearmain,
Pound Sweet,
Winter Sweet,
Pear Apple.

In addition to the above, there are twenty-nine (29) varieties unnamed—making a total of one hundred and forty-seven (147) varieties.

LIST OF APPLES EXHIBITED BY J. AUSTIN SCOTT.

WINTER VARIETIES.

Jonathan,
King Tompkins Co.,
R. I. Greening,
Baldwin,
Fort Miami,
Wagner,
Swaar,
Belmont,*
Peck's Pleasant,
Spafford Russett,
Newtown Pippin,
Esopus Spitzenberg,
Roxbury Russett,
Putnam Russett,
N. England Russett,
American Russett,
Russett Greening,
Wine Sap,
Rome Beauty,
Ortley, or White Bellflower,
Yellow Bellflower,
English Redstreak,
Flushing Spitzenb'g,
Kaighn's Spitzenb'g,
Northern Spy,
Democrat,
Romanite,
Fameuse,
Cabusha,
Lady Apple,
Talman Sweeting,
Cayuga Red Streak, or 2052,
Ladies' Sweeting,
Pennock,
Austin, or Pear Apple,
Herefordshire Pearmain,
Red Caville,
Blue Pearmain,
Ohio Red Streak,
Hubbardson None Such,
Black Apple,
Black Gillflower,
Tulpehocken.

FALL VARIETIES.

Gravenstien No. 1,
Maiden's Blush,
Pearmain,
Vandervere Pippin,
Fall Pippin,
Cheeseboro' Russett,
Spice Sweeting,
Cranberry Russett,
Granny Winkle,
Hawley, or Dowse,
Fall Queen,
Pome Royal, or Dyer,
Black Detroit,
Autumn Strawberry,
Late Sweet Bough,
Republican Pippin,
St Lawrence,
Porter No. 1,
Fall Junating,
Holland Pippin,
Spanish Rinette,
Golden Pippin,
Rambo Fall,
McMillen's Seedling.

SUMMER VARIETIES.

Early Harvest,
Red Astrachan,
Sweet Bough,
Golden Sweeting,
William's Favorite,
Early Strawberry,
Summer Queen,
Drap D'Or,
Keswick's Codlin.

Winter varieties named	44
Fall " "	24
Summer " "	9
Winter Fall and Summer, not named	51
Total number on exhibition	128

LIST OF APPLES EXHIBITED BY D. C. RICHMOND.

Rhode Island Greening,
Belmont,
Baldwin,
Northern Spy,
Tolpahocking,
Peck's Pleasant,
Rambo,
Cuyahoga Red Streak,
Poughkeepsie Russett,
Green Newtown Pippin,
Fall Pippin,
Porter,
Maiden's Blush,
Gravenstein,
Red Sweet,
Yellow Bellflower,
Pumpkin Sweet,
Gloria Mundi,
Red & Green Sweet,
King of Tompkins Co.,
Richmond,
Sweet Pippin,
Jersey Sweet,
Westfield Seek-no-further,
Green Sweet,
Ribstone Pippin,
Black Gillyflower,
Golden Russett,
Roxbury Russett,
Lowell,
Talman Sweet,
Beauty of the West,
Fall Wine,
Summer Sweet Paradise,
Dominie,
Munson Sweet,
Pumpkin Russett,
Dillingham.

PEACHES, PEARS, QUINCES, AND SMALL FRUITS.

In this Class there were 45 entries. The awards were as follows:

PEACHES.

Best 6 named varieties, 6 each, G. & S. Boalt, Norwalk	$10
" plate of 6 of one kind, John H. Long, Hamilton	2
2d best " " T. P. Johnston, Osborn	1
Best and greatest display, G. & S. Boalt, Norwalk	15
2d best " " "	10

PEARS.

Best 10 varieties, not less than 5 each, A. B. Buttles, Columbus	10
2d best " " Geo. Powers, Perrysburg	5
Best 5 " " W. E. Mears, Milford	5
2d best " " Geo. Powers, Perrysburg	3
Best 3 " " C. Limpert, Groveport	3
2d best " " Geo. Powers, Perrysburg	2
Best peck of one variety, C. Limpert, Groveport	3
2d best " G. S. Innis, Columbus	2
Best display, 10 varieties, Geo. Powers, Perrysburg	15
2d best " R. G. Hanford, Columbus	10

QUINCES.

Best 12, C. C. Norton, Columbus,	$3
2d best, A. B. Buttles, “	2

NATIVE NUTS AND FRUITS.

Best collection of native uncultivated nuts, H. H. G. Smith, Toledo	5
“ “ “ “ fruits, “ “	5

REPORT OF COMMITTEE.

The committee respectfully suggest that hereafter, in the list of fruits, there should be, as in flowers, an *amateur* as well as a *professional* list. The collection shown by A. Thompson, of Delaware, we deem worthy of a special premium of five dollars, though it would not equal, in the number of varieties, the collection of large nurserymen. We think more encouragement should be given to enterprising amateurs; and by having separate lists, as above stated, this class would not be brought into direct competition with the large collection of professional nurserymen.

A very fine display of pears was exhibited by Elwanger & Barry, of Rochester, N. Y., embracing eighty-five varieties, which the committee highly commend and deem worthy of a special premium of ten dollars, subject to approval of the Board.

The committee found a fine and interesting collection of native wild fruits, nuts and seeds on exhibition, from E. J. Ferris, Painesville; they were all labeled with their botanic and popular names, and formed an instructive feature in the display deserving special commendation.

LIST OF PEARS EXHIBITED BY ELLWANGER & BARRY.

SUMMER PEARS.

Bartlett,
Beurre Antoine,
Canandaigua,
Washington,
Kingsessing,
Beurre d'Amaulis,
Ontario,
Siller.

AUTUMN PEARS.

Beurre Superfine,
Doyenne White,
Bonne Sophie,
Louise B. d'Jersey,
Howell,
Buffum,
Flemish Beauty,
Comte d'Flanders,
Wescott,
Paul Ambre,
Doyenne Robin,
Compte d'Laney,
Marie Louise,
Urbaniste,
Compte d'Paris,
Earle's Seedlings,
Baronne d'Mello,
Admirable,
Beurre Moire,
Bonne d'Zees,
Barry,
Archduke Charles.
Dutchess d'Orleans,
Beurre Citron,
Triumph d'Jodoyne,
Beurre Diel,
Maxim,
Henry IVth,
McVean,
Petre,
Beurre Benoist Nouveau,
Laura d'Dymes,
Beurre Bosc,
Dix,
Van Hous Leon de Clerc,
Stevens' Denessee,
Beurre d'Anjou,
Paradise d'Automne,
Sheldon,
Doyenne Bousock,
Duchessse d'Angouleme,
Pratt,
Belle Lucrative,
Gray Doyenne,
Seckel,
Beurre Clairjeau,
Nantais,
Beurre Hawley,
Madam Eliza,
Niva Marie Louise,
Hall,
Brown Beurre,
Colmar Epine,
Chapman,
Church,
Oswego Beurre,
Gansel's Bergamott,
Andrews,
Elizabeth Edward,
Liberale,
Arbre Combre,
Beurre Benner.

WINTER PEARS.

Beurre Easter,
Doyenne Lieulle,
Josephine d'Malines,
Beurre Gris d'River,
Vicar of Winkfield,
Beurre Largelier,
Doyenne Gouboult,
Belle Williams,
Columbia,
Lawrence,
Beurre Bachelier,
Winter Nelis,
Pater Noster,
Pound,
Wilbermoz.

LIST OF PEARS EXHIBITED BY L. G. HANFORD.

Wilber,
White Doyenne,
Beurre Hardy,
Princess St. Germain,
Canandaiga,
Glout Morceau,
Easter Beurre,
Vicar of Winkfield,
Paquency,
St. Michael Archangel,
Compte d'Paris,
Beurre Bretterleau,
Beurre Benner,
Alexander Lambre,
Jalouise d'Fontenay,
St. Germain,
Pratt,
Hull,
Pennsylvania,
Gratiola,
Beurre Duhaume,
Louise Bonne d'Jersey
Paul Thielens,
Beurre Bachelier,
Alexander Bivort,
Rousellt d'Hiver,
Napoleon,
Belle d'Noell,
Gray Doyenne,
Fred'k LeClerc,
Howells,
Stevens' Genessee,
Easter Bergamotte,
Miles,
Beurre Laughlin,
Beurre Diel,
Beurre Cutter,
Fig de Naples,
Urbaniste,
Winter Nelis,
Beurre d'Anjou,
Seckel,
Passe Colmar,
Lawrence,
Mons. Affre,
Duchess d'Orleans,
Chaptal,
Beurre d'Waterloo,
Beurre d'Amaulis,
Kingsessing,
St. Ghislain,
Henry IVth,
Oswego Incompar'ble,
Colmar Musque,
Buffum,
Emelie d'Heyst,
St. Andre,
Flemish Beauty,
Washington,
Ott,
Paul Ambre,
Columbia,
Beurre Moire,
Beurre Genbalt,
Doyenne Bousock,
Belle Lucrative,
Swans Orange,
Duchess d'Angouleme.

LIST OF PEARS EXHIBITED BY A. B. BUTTLES.

Duchess d'Angouleme,
Louise Bon d'Jersey,
Sheldon,
Seckel,
Beurre Clairgeau,
Beurre d'Anjou,
Beurre Diel,
Winter Nelis,
Flemish Beauty,
White Doyenne,
Howell,
Oswego Beurre,
Belle Lucrative,
Jalouise d'Fontenay,
Lawrence,
Onandaga,
Easter Beurre,
Stevens' Genessee,
Duchess d'Orleans,
Buffum,
Beurre Bosc,
Vicar of Winkfield,
Trio d'Iodoigne.

LIST OF UNCULTIVATED FRUITS AND NUTS EXHIBITED BY E. J. FERRIS.

FRUITS.

	Common Names.	*Botanic Names.*
1.	Alder, black	Ilex vesticillati.
2.	Alder, tag	Alnus serrulata.
3.	Apple, crab	Pyrus coronaria.
4.	Arrow-wood, maple-leaved	Viburnum acerifolium.
5.	Anemone, long-fruited	Anemone cylindrica.
6.	Avens	Geum album.
7.	Bellwort, sessile-leaved	Uvularia sessilifolia.
8.	Basswood	Tilia glarba.
9.	Bittersweet	Solanum nigrum.
10.	Blackberry, common	Rubus villosus.
11.	Blackberry, running	Rubus hispidus.
12.	Blueberry, swamp	Vaccinium corymbosum.
13.	Blueberry, dwarf	Vaccini Pennsylvanicum.
14.	Blue tangle	Vaccinium frondosa.
15.	Black whortleberry	Vaccinium resinosum.
16.	Burning bush	Euonymus Americanus.
17.	Button bush	Cephalanthus occidentalis.
18.	Buttonwood	Platanus occidentalis.
19.	Black cap	Rubus occidentalis.
20.	Bottle grass	Setaria viridis.
21.	Birch, sweet	Betula lenta.
22.	Cherry, black wild	Prunus Virginiana.

23. Chokeberry, red	Aronia sanguinea.
24. Chokeberry, black	Aronia melanocarpa.
25. Cohosh, white	Actesæ alba.
26. Cohosh, blue	Caulophyllum thalictroides.
27. Cornel, alternate-leaved	Cornus alternifolia.
28. Cornel, panicled	Cornus paniculata.
29. Cat-tail	Typha latifolia.
30. Cranberry	Vaccinium macrocarpa.
31. Currant, wild black	Ribes floridum.
32. Cucumber tree	Magnolia acuminata.
33. Cardinal flower	Lobelia cardinalis.
34. Coral root	Corallorhiza innata.
35. Creeper, Virginia	Ampelopsis quinquefolia.
36. Dewberry	Rubus Canadensis.
37. Dogwood	Cornus florida.
38. Elder, common	Sambucus Canadensis.
39. Elder, red berried	Sambucus pubens.
40. Elder, dwarf	Aralia spinosa.
41. False foxglove	Gerardia flava.
42 Fern, sensitive	Onoclea sensibilis.
43. Fringe tree, white	Chioanthus virginicus.
44. Feverwort	Triosteam perfolatium.
45. Grass, barn-yard	Panicum crus galli.
46. Ginseng	Panax quinquefolia.
47. Gooseberry	Ribes lacustris.
48. Grape frost	Vitis cordifolia.
49. Grape, Ohio fox	Vitis vulpina.
50. Green brier	Smilax rotundifolia.
51. Grass, cotton	Eriophorum polystachyon.
52. Ground cherry	Physalis viscosa.
53. Golden Alexanders	Zizia integerrima.
54. Garlic, wild meadow	Allium Canadense.
55. Galingale	Cyperus strigosus.
56. Hemlock, poison	Conium maculatum.
57. Hawthorn	Crataegus punctata.
58. Hemlock	Pinus Canadensis.
59. Honewort	Cryptolenia Canadensis.
60. Honeysuckle	Lonicera grata.
61. Hazel, witch	Hamamelis Virginica.
62. Hop	Humulus lupulus.
63. Huckleberry squaw	Vaccinium stamineum.
64. Indian cucumber root	Gyromia Virginica.
65. Indian turnip	Arum triphyllum.
66. Ivy, poison	Rhus toxicodendron.
67. Indian hemp	Apocynum cannabinum.
68. Indian tobacco	Lobelia inflata.
69. Jacob's ladder	Smilax peduncularis.
70. Juneberry	Aronia botryapium.
71. Kentucky coffee tree	Gymnocladus Canadensis.
72. Larch, American	Larix Americana.
73. Lopseed	Phryma leptostachya.
74. Lobelia, great	Lobelia syphillitica.
75. Loosestrife, swamp	Decodon verticillatum.
76. Lizard-tail	Saururus cernuus.
77. Milkweed, common	Asclepias cornuti.
78. Mandrake	Podophyllum peltatum.
79. Mountain ash	Sorbus Americana.
80. Mulberry, red	Morus rubra.
81. Mad-dog skull-cap	Scutellaria lateriflora.
82. Maple, sugar	Acer saccharinum.
83. Nightshade, enchanted	Circæa lutetiana.
84. Nightshade	Solanum nigrum.
85. Nettle, false	Boehmeria cylindrica.
86. Osier, red	Cornus stolonifera.
87. Papaw	Asimina triloba.
88. Pine, white	Pinus strobus.
89. Plum	Prunus Americana.
90. Pokewood	Phytolacca decandra.

91.	Pipsissiwa	Chimaphila umbellata.
92.	Pogonia	Pogonia verticillata.
93.	Purslin water	Ludwigia palustris.
94.	Pepperidge	Nyssa multiflora
95.	Pitcher plant	Sarracenia purpurea.
96.	Partridge-berry	Mitchella repens.
97.	Red cedar	Juniperus Virginiana.
98.	Raspberry, red	Rubus strigosus.
99.	Reed burr	Sparganum enycarpum.
100.	Reed burr	Sparganum ramosum.
101.	Rose, climbing or prairie	Rosa setigera.
102.	Rose, early wild	Rosa blanda.
103.	Rush, common	Juncus effusus.
104.	Rush, toad	Juncus bufonius.
105.	Snake lily	Iris versicolor.
106.	Spikenard	Aralia racemosa.
107.	Sassafras	Laurus sassafras.
108.	Sheepberry	Viburnum lentago.
109.	Solomon's-seal, spiked	Convallaria racemosa.
110.	Smaller Solomon's-seal	Polygonatum multiflorum vel biflorum.
111.	Sumach, poison	Rhus venenata.
112.	Sumach, stag-horn	Rhus typhina.
113.	Sumach, smooth	Rhus glabra.
114.	Sweetbrier, smaller	Rosa micrantha.
115.	Sedge	Carex folliculata.
116.	Sedge	Carex crinila.
117.	Stonecrop, ditch	Penthorum redoides.
118.	Snakeroot, black	Cimicifuga racemosa.
119.	Self-heal	Brunella vulgaris.
120.	Savin	Juniperus sabina.
121.	Strawberry tree	Euonymus atropurpureus.
122.	Thorn-apple	Datura stramonium.
123.	Tulip tree	Lyriodendron tulipifuera.
124.	Tick trefoil	Desmodium paniculatum.
125.	Twisted stalk	Streplopsus amplexifolius.
126.	Teasel, wild	Dipsacus sylvestris.
127.	Thorn pear	Crataegus pyrifolia.
128.	Wintergreen, aromatic	Gaultheria procumbens.
129.	Wintergreen, spotted	Chimaphila maculata.
130.	Yam	Dioscoma villosa.
131.	Hemlock	Pinus Canadensis.
132.	Tick trefoil	Desmodium nudiflorum.
133.	Bush clover	Lespedeza capitata.

NUTS.

1.	Beech, American	Fagus ferruginea.
2.	Beech, water	Carpinus Americana.
3.	Butternut	Juglans cinna.
4.	Black walnut	Juglans nigra.
5.	Bladder-nut	Staphylea trifolia.
6.	Chestnut	Castanea vesca.
7.	Ground-nut	Apios tuberosa.
8.	Hickory-nut, shagbark	Carya alba.
9.	Hickory-nut, thick shell-bark	Carya sulcata.
10.	Hickory broom or pig-nut	Carya amara.
11.	Horse chestnut	Aesculus glabra.
12.	Hazel-nut	Corylus Americana.
13	Ironwood	Ostrya Virginica.
14.	Oak white	Quercus alba.
15.	Oak, over cup	Quercus macrocarpa.
16.	Oak, red	Quercus rubra.
17.	Oak, chestnut	Quercus monticola.
18.	Oak, swamp white	Quercus bicolor.
19.	Oak, inkball	Quercus coccinea.
20.	Oak, quercitron	Quercus tinctoria.
21.	White heart hickory	Carya tinctoria.

H. H. G. Smith also exhibited a lot of uncultivated nuts and fruits.

GRAPES.

In this class there were 27 entries. The awards were as follows:

HARDY.

Best six named varieties, four bunches each, John Kelley, Cleveland	$5
2d best six named varieties, four bunches each, D. C. Richmond, Sandusky	3
Best three named varieties, six bunches each, W. Z. Barney, Sandusky	3
2d best three named varieties six bunches each, C. Limpert, Groveport	2
Best display ten varieties, three bunches each, W. Z. Barney, Sandusky	10
2d best display ten varieties, three bunches each, John Underwood & Co., Columbus,	7

FOREIGN.

Best three var., two bunches each, grown under glass, G. W. Campbell, Delaware	5
2d best var., two bunches each, grown under glass, A. B. Buttles, Columbus	3
Best bunch, G. W. Campbell, Delaware	2

Awarding Committee—M. B. Bateham, J. R. Miller, Geo. Powers, J. E. Mottier.

FINE ARTS.

In this Class there were 89 entries. The awards were as follows:

DRAWINGS, PAINTINGS, SCULPTURE, ETC.

Best life-size oil col'd photograph by Ohio artist, M. Witt, Columbus	Dip. and $10
2d best " " " " " "	Dip. and 5
Best oil painting by American artist, R. E. Neil, Columbus	20
" " Ohio artist, J. H. Witt, Columbus	20
" specimen uncolored photograph, G. W. Davis, Columbus	Diploma.
" " fruit painting, H. T. Chittenden, Columbus	"
" " flower painting, Jenny M. Neil, Columbus	"
" Ohio landscape, in oil, by Ohio artist, D. B. Walcutt, Columbus	"
" exhibition of paintings, D. B. Walcutt, Columbus	Dip. and 10
2d best " " Miss Maggie A. Strang, Reynoldsburg	5
Best fancy painting in water colors, " "	Diploma.
" engraving, Mrs. T. G. Wormley, Columbus	"
" specimen penmanship, Jno. Gundry, Cincinnati	"
" crayon drawing, Miss E. Miller, Columbus	"
" pencil " Mrs. G. M. Parsons, Columbus	"
" pen " Bush & Marshall, Columbus	"
" collection marble work, Kendall Bro. & Co., Columbus	10

The committee on drawings, paintings, etc., make the following report:

There were no entries in oil paintings by foreign artists, but the committee recommend as deserving a premium, a marine view, the property of George M. Parsons, and a Magdalen, the property of H. T. Chittenden. It is also their opinion that the photographs colored in water colors exhibited by A. S. Baldwin, are of superior merit, but *for which no premium* was offered.

Joseph Sullivant,
Mrs. Geo. M. Parsons,
Mrs. R. E. Neil,
Miss Ayler,
Miss Cutler,
H. T. Chittenden.
Awarding Committee.

DESIGNS.

In this Class there were 2 entries. The following are the awards:

Best design for poultry House, Edwin Corner, Columbus, O..............Dip. and $5
" model for bridge, Freedom Monroe, Romeo, Mich..................Diploma.

MUSICAL INSTUMENTS.

In this Class there were 12 entries.' The awards were as follows:

Best grand or semi-grand pianoforte, Jno. Seltzer & Co., ag'ts (Knabe) Col.. Sil. Medal
" boudoir piano, " " " " "
" square " " " " " "
" parlor organ, " " " " Diploma.
" Melodeon, J. Harris & Co., agents, Columbus .... "

The "Cycloed Square Piano" exhibited by J. Harris & Co., agents, the committee regard as worthy of commendation.

H. O. Straubel,
Mrs. L. C. Bailey,
Jenny M. Neil,
Mrs. J. A. Scarritt.

COMMENDED LIST.

JACKS.

L. Cleggett, Xenia, Greene county, jack Bourbon, 4 years old.
W. Cleggett, " " " jennet Martha, 4 years old.

SOUTH DOWN AND FAT SHEEP.

N. L. Chaffee, Jefferson, Ashtabula county, Southampshire Down buck, over 2 yrs old.
Samuel Toms, Oshawa, Canada West, buck over 2 yrs old.
" " " " one year old.
" " " pen of ewes over 2 yrs old.
" " " " one year old.
" " " Hampshire Down buck, 1 year old.
† Frederick Hefflinger, Groveport, Franklin county, O., 3 pairs ducks, $3.
Wm. Holmes, Gallion, O., portable steam engine.
Dr. J. Kindleberger, Aetna, O., centre vent water wheel.
" " double turbine outward oblique discharge saw mill water wheel.
* James Harsha, Circleville, Pickaway county, stone-grinding and polishing machine.
* Bradford & Sharp, Cincinnati, leather machine belting.
Fredolin Smith, Tiffin, Seneca county, wood bending machine.
D. M. Doub, Cleveland, graduating lubricators for steam engines.
" " transparent oil cups.
" " gauge cocks, solid valve.
" " " loose.
" " transparent oilers.
* Jones & Laughlin, Pittsburgh, Pa., patent cold rolled shafting.
" " " patent cold rolled reaper and mower finger bars.
Wm. Spaulding, Port Clinton, O, model steam engine.

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* Diploma. † $——.

Nixon & Co., Alliance, O., key seat cutter.
J. H. Lerow, Newark, N. J., Wright's improved saw gauge.
C. C. Winchell & Co., Cincinnati, Ohio, steam pumps.
J. L. Bryant, Logansport, Ind., pattern-making machine.
same " power clamp.
Wesley Edwards, Agent, Hornellsville, N. Y., Morton's patent iron hand drill.
W. B. Niman & Co., Mansfield, Ohio, punch and tire springer.
A. Gaar & Co., Richmond, Ind., measure attached to threshing machine.
White & Bostwick, Norwalk, Ohio, log cross-cut saw mill.
H. N. Tracy, Essex Junction, Vt., horse hay rake.
Hussey, Wells & Co., Pittsburg, Penn., Sprout's patent rake-teeth.
G J. Bartlett, Greenwich, Ohio, excelsior vegetable cutter.
H. B. Wilbur, Syracuse, N. Y., Bullard's hay tedder.
White & Bostwick, Norwalk, Ohio, sweep horse power.
D. M. Doub, Cleveland, Ohio, Wood's one-horse mower.
Fowler & Wicks, Upper Sandusky, Ohio, horse hay pitch fork.
Jacob McClure, Rockland, Maine, potato digger.
Fowler & Wicks, Upper Sandusky, Ohio, hay gatherer.
Joseph Leffell, Springfield, knife for cutting, topping and stripping sorghum.
* Henry Fisher, Canton, O., hand lawn mower.
* Grover & Wilson, Cleveland, Ohio, safety oil can.
D. E. Stearns, Berea, Ohio., grindstone.
same " oil stone.
—— Locke, Springfield, Ohio, flour and sauce sifter.
George H. Hinkel, Middletown, Ohio, graduative faucet measure.
Lewis, Durbin & Lewis, Iowa City, Iowa, sheep chair.
same " " hay loader.
Sage & Bakers, Huntington, Ohio, portable sheep shed and pen.
Bradford & Sharp, Cincinnati, Ohio, portable flour and feed mill.
Joseph Sedgebeer, Painesville, Ohio, corn meal mill.
Osborn & Chapin, Piqua, Ohio, fanning mill.
W. C. Herrider, Miami, Ohio, farm gate.
Joseph Sedgebeer, Painesville, O., flour mill.
same " universal self-sharpening coffee and spice mill.
Richardson & Welch, Xenia, Ohio, hominy machine.
Wick, Wright & Hopkins, Springfield, Ohio, two hominy mills.
Robert Hart, Savannah, Ohio, rack for feeding sheep.
* A. Gray, Riley, Ohio, case of Italian bees
W. Spaulding, Port Clinton, road scraper (model).
Freedom Monroe, Romeo, Michigan, road scraper, or machine for leveling land.
J. M. West, Wilmington, atmospheric churn.
Richard Kees, Ashley, churn.
J. L. Shaw, Springhill, cistern pump.
Agricultural Machine Co., Columbus, apparatus for raising water.
H. B. Shaver, Brunswick, Dair's Machine for Shaering Sheep.
*C. Hone, Fremont, Hoag's Self-acting Churn Power.
Freedom Monroe, Romeo, Michigan, improved quilting bars.
same " " improved quilting rollers.
J. M. Clark & Co., Dayton, broom wrapper.
H. J. Henderson, Columbus, Henderson's Hand Power Loom.
*Geo. E. Blakelee, Huntington, sheep-chair.
Lewis, Durbin & Lewis, Iowa City, Iowa, sheep-shearing stool.

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* Diploma awarded.

Silvers, Kenworthy & Co., Collinsville, O., broom head "Excelsior."
Beaver & Butt, Dayton, patent step ladder.
S. W. Folsom, Toledo, pruning knife.
Branson & Harlan, Cincinnati, Lamb's self-acting hand loom.
S. L. Sage & O. T. Baker. Huntington, Ohio, portable sheep shed, rack and fold.
J. S. Elliott, Coshocton, D. Nelson's patent plow shrae and point.
* Taylor & O'Harra, Columbus, hearse.
same do metalic burial cases.
Freedom Monroe, Romeo, Michigan, machine to fill wagon ruts.
same do do improved roller for fore wheel of wagon.
S. Branson, agent, Cincinnati, Lamb's knitting machine.
Mrs. R. A. S. Janney, agent, Columbus, Florence sewing machine.
E. W. Gleason, agent, Cleveland, Florence sewing machine.
* D. Barnum, 508 Broadway, New York city, attachment for sewing machine, Barnum's self-sewer.
J. D. Osborn & Co., Columbus, damask curtains.
same do lace curtains.
same do carpet.
Mrs. H. Coit, Columbus, India rubber cloth.
* Alton, Pope & Sons, Cleveland, piece ladies' cloth.
J. Bartell, Columbus, French fluting.
Mrs. G. W. Shapley, Columbus, fancy velvet chair.
Mrs. J. H. Klippart, Columbus, fancy chair cushion.
Mrs. Kate Meyer, Columbus, two ornamental pin cushions.
Mrs. M. Church, Painesville, needle box.
Mrs. J. H. Klippart, Columbus, specimen ornamental needle work, curtain holders.
* Headley, Richards & Co., Columbus, variety of cloaks exhibited for shape and fit.
Miss Emma McCleland, Columbus, tetting.
Miss Almira Babbitt, Newark, Ohio, group of agricultural flowers (wreath).
same do group of artificial flowers (boquet).
Mrs. M. C. Lilley, Columbus, agricultural boquet.
Mrs. B. Mowatt, Columbus, embroidered picture.
Miss Hellie Breyfogle, Columbus, ornamental picture frame (made of leather.)
Mrs. B. W. Morris, Columbus, one dark-colored bracket.
same do fancy pyramid.
Abraham Davey, Niagara Falls, New York, pair feather fans.
same do do pair cushions.
Miss Mary J. Willis, Groveport, what-not.
Mrs. W. F. Griswold, Worthington, hanging basket.
Miss Wilkie, Columbus, one head dress.
same do one lace cap.
same do five nets.
Miss Emma Smythe, Columbus, ornamental hair work.
Mrs. William Lamb, Columbus, worsted tidy.
Mrs. M. Miller, Pataskala, one tidy.
Mrs. M. A. Staley, Columbus, agricultural or seed wreath.
† Mrs. M. E. Somers, Pittsfield, two pair woolen knit socks, $2.
† Mrs. M. Church, Painesville, two pair woolen knit socks, $1.
Mrs. Charles Osgood, Westerville, two pair woolen knit stockings.

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* Diploma. † $ ——

A. G. Smith, Newbury, linen stockings.
† Mrs. C. K. Watkins, Columbus, one pair cotton knit socks, $2.
same do three pair cotton knit stockings, $2.
Mrs. Lucinda Converse, Mantua, one linen table cloth.
Mrs. R. A. S. Janney, Columbus, 6 sizes Fisk's patent lamp heating and cooking apparatus.
same do 4 do do do glue pots.
O. M. Babcock, Chicago, Ill., ribbon hand stamp.
* W. L. Marvin, Cleveland, patent coffee pot.
* Wm. Blynn, Columbus, bronzes.
Dr. A. Eckert, Trenton, Ohio, combined foot stove, lantern and nurse stove.
G. W. Spangler, Williams' Centre, Ohio, combined foot stove and lantern.
Dr. A. Eckert, Trenton, Ohio, pulmonometer (lung gauge).
G. Strain, Delaware, dining chairs.
Mrs. E. Jaeger, Columbus, ornamented table and chess board.
* J. E. Hall, Columbus, Wells' patent folding spring mattress.
* O. Whittier, Cleveland, Multon's spring bed.
H. Lott & Son, Columbus, iron backed chair.
A. Wilmot, Cleveland, folding cradle.
J. G. Strain, Delaware, child's table chair.
A. Wilmot, Cleveland, family flour and meal sifter.
Meyer & Requarth, Dayton, sample stair balusters.
* N. E. Lovejoy, Columbus, wood eave troughs and pipes.
C. C. Bolton, agent, Cleveland, writing paper.
N. H. Herrick, Litchfield, one pair fine gloves.
* George Purple, Wellington, harness and buckle.
C. H. Perkins, Wyoming, N. Y., superior process of tanning.
* C. Siebert, Columbus, double-barreled shot gun.
same do cast-steel rifle.
* R. Lewis & Son, Toledo, engine oil.
same do signal light oil.
E. M. Livermore, agent, Cleveland, sheep wash.
Sheet Metal Screw Company, New York city, preserve jars.
Mrs. H. Coit, Columbus, collection of mineral ores.
Henry Moores, Columbus, cabinet of shells.
O. L. Jones, Columbus, one box scythe stones.
* Farnsworth, Spalding & Co., Columbus, twelve boxes dry hop yeast.
Antrim & Davis, Dayton, lemon biscuit.
Mrs. T. G. Barr, Columbus, sorgho ginger bread.
M. S. Dyer, agent, New York city, canned plums.
same do canned crab apples.
same do canned pine apples.
Mrs. J. W. Durret, Becket's Store, canned pie plants.
same do canned pumpkins.
Mrs. J. W. Durrett, Becket's Store, canned corn and tomatoes.
same do do beans.
same do do pears.
same do do strawberries.
same do do mulberries.
same do do grape marmalade.
same do do gooseberry marmalade.

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* Diploma. † $ ——

Mrs. Sarah McCormick, Columbus, canned apricots.
same do do green gague plums.
Mrs. W. R. Sprague, Reynoldsburg do tomatoes.
Charles Osborn, Blendon Corners do blackberries.
Mrs. J. W. Durrett, Beckett's Store do raspberries.
Mrs. D. M. Slyh, Columbus do peaches.
same do do pears.
Mrs. J. W. Durrett, Beckett's Store do apples.
Mrs. W. R. Sprague, Reynoldsburg do quinces.
Mrs. Sarah McCormick, Columbus do cherries.
Mrs. J. W Durrett, Beckett's Store do gooseberries.
Mrs. W. R. Sprague, Reynoldsburg do currants.
Mrs. J. W. Durrett, Beckett's Store do grapes.
Mrs. W. R. Sprague, Reynoldsburg, variety of canned fruit.
Engelke & Derrick, Columbus, pure whisky vinegar.
Mrs E. A. Ratcliff, Zanesville, raspberry jelly.
Mrs. R. R. Dickey, Dayton, grape jelly.
same do crab-apple jelly.
Mrs. Benj. Conard, Hillsboro, plum jelly.
same do pear jelly.
same do gooseberry jelly.
Mrs. G. W. Shapley, Columbus, preserved grapes.
Mrs. J. W. Durrett, Beckett's Store, preserved blackberries.
same do pickled pears.
Mrs· C. C. Norton, Columbus, variety of jellies.
Mrs. Benj. Conard, Hillsboro, currant jelly.
Alex. Frankenberg, Columbus, tomato catsup.
Charles Osborn, Blendon Corners, cucumber catsup.
Blymer, Bates & Day, Mansfield, Cook's evaporator.
J. T. Armstrong, Delaware, domestic cigars.
Marple, Baumgard & Sage, Columbus, domestic cigars.
T. W. Talmadge, Columbus floral ornament.
A. Thompson, Delaware, display of pears.
*Ellwanger & Barry, Rochester, N. Y., display of pears (grown in New York.)
Mrs. Mary Wharton, Columbus, plate of Isabella grapes,
J. Harris & Co., Agent, Columbus, Linderman & Sons cycloid square piano.

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*Diploma.

STATEMENTS OF FARM CROPS.

The State of Ohio, Van Wert County, ss.:

Personally appeared, T. S. Gilliland, who, being duly sworn, states that he raised one acre of barley in the following manner: The soil was sandy—barley stubble—with a coating of manure; sowed the first week in September; drilled three inches deep, and two bushels to the acre; and further, that the barley reported was all raised on the acre, measured by S. J. Snodgrass, as he verily believes.

T. S. Gilliland.

Sworn to and subscribed before me this 13th day of October, A. D. 1865.

A. McGarven, *Probate Judge.*

The State of Ohio, Van Wert County, ss.:

Personally appeared, Samuel J. Snodgrass, who, being duly sworn, states that he measured one acre of barley, raised by T. S. Gilliland, and that there was no more nor no less, as he verily believes.

Samuel J. Snodgrass.

Sworn to and subscribed before me this 13th day of October, 1865.

A. McGarven, *Probate Judge.*

The State of Ohio Van Wert County, ss.:

Personally appeared, Henry Everett, who, being duly sworn, states that he measured the barley raised by T. S. Gilliland, and that there was forty-four bushels and three-fourths, and no more nor no less, as he verily believes.

Henry Everett.

Sworn to and subscribed before me this 13th day of October, A. D. 1865.

A. McGarven, *Probate Judge.*

State of Ohio, Champaign County, ss.:

John Earson, being duly sworn, says that he raised a crop of hay, the past season, upon the land measured by Michael Sullivan, Henry C. Laybourn and J. C. Laybourn, and that the quantity of hay raised thereon was eight tuns and six hundred and thirty-eight pounds, and no more, weighed in the cock by steelyards; and that the statement of the kind and condition of the soil, and the cost of harvesting, curing, &c., are correct, to the best of his knowledge.

John Earson.

Sworn to before me this 31st day of August, 1865.

A. Warner, *Probate Judge.*

Description of the Soil.—Buck-Creek bottom, black loam, subject to overflow, and also overflowed by three drains coming in from the hill, has been in grass for twenty years last past, but is now mixed some with clover:

COST OF HARVESTING ETC.

Harvesting $1 per acre	2 00
Stacking, $1.50 per acre	3 00

Sold it in the cock for $5 per tun.

John Earson.

This is to certify that we assisted to measure the ground and weigh two acres of hay for John Earsom, in Union township, Champaign county, Ohio, which was dry and in good order. The first acre weighed ninety-one hundred and sixty-six (9166) pounds, and the second weighed eighty-one hundred and ten (8110) pounds.

MICHAEL SULLIVAN,
HENRY C. LAYBOURN,
J. C. LAYBOURN.

Sworn to and subscribed before me this 29th day of July, 1865.

JOHN EARSOM, J. P.

CIRCLEVILLE, November 18, 1865.

To the Pickaway County Agricultural Society:

In accordance with the rules of the Society, I engaged Mr. Winship Gill and Mr. Joseph P. Curl to measure an acre of corn entered by me last Fair, and the same was husked and measured by Wm. Robinson, and eighty-five bushels was the result.

This acre, one year before, would not have produced twenty bushels, having been grossly neglected. I manured the same, plowed in the fall and again in the spring, as deep as the plow would go; planted early, dressed twice with cultivator and once with shovel plow and laid by.

WM. VAN HEYDE.

The State of Ohio, Pickaway County, ss.:

Before me, A. T. Walling, a Notary Public, personally appeared Winship Gill, Joseph P. Curl and Wm. Robinson, and made oath to the foregoing statement.

A. T. WALLING,
Notary Public.

The State of Ohio, Morrow County, ss.:

E. H. Erwin, being sworn, says that the half acre sorghum entered by him at the Morrow County Fair, 1865, yielded, upon the making up thereof, one hundred and six and one-half gallons syrup.

Said cane was planted in rows about three and a half feet apart one way and about sixteen inches the other way.

And further, deponent saith not.

E. H. ERWIN.

Sworn to and subscribed before me this 28th day of October, 1865.

And on the same day personally appeared Nathan Marsh and made oath that he assisted in the measurement of said grounds and in the making thereof, and knows the matters and things therein set forth to be true.

NATHAN MARSH, JR.

Sworn to before me the day and year aforesaid.

E. M. CHASE,
Notary Public.

The State of Ohio, Morrow County, ss.:

E. H. Erwin, being sworn, says that the acre corn entered by him at the Morrow County Fair, 1865, yielded, on the husking thereof, one hundred and four bushels and twenty-six pounds of corn.

Said corn was planted in rows both ways, three and a half feet apart each way.

And further, deponent saith not.

E. H. ERWIN.

Sworn to and subscribed before me on this 28th day of October, 1865.

E. M. CHASE,
Notary Public.

I herewith give the products of one-fourth of an acre of sorghum, which I purpose entering for a premium at the coming Harrison County Fair. The soil is sandy loam. No manure was used. The land had been farmed in corn the two previous years. The ground was plowed and planted about the first of May, after which the crop was worked over three times, once with the cultivator and twice with the shovel plow. The cane was cut and hauled immediately to the mill, the seed being about one-half ripe. The juice was evaporated in sheet iron pans. The amount of molasses made was seventy-two gallons.

JOHN N. HAVERFIELD.

We do hereby certify the above statement to be correct.

SAMUEL M. HINES,
J. R. HINES.

Smithfield Township, Jefferson County, O.

We do hereby certify that we measured the field of Josiah Glover on which the crop of wheat was raised that he now contends for premium upon, and found the same to contain nine acres and nine perches, and upon accurate measurement of the wheat it contained two hundred and thirteen bushels.

WILLIAM BOWLES,
WILLIAM L. KYLE.

The ground upon which the above crop of wheat was raised is of lime and sand-stone soil, sown upon oats and barley stubble. Common barn manure was scattered upon the top of the ground, and plowed under.

The time of plowing was between the first and fifteenth of September, and in the usual way; and the wheat sown from the fifteenth to the eighteenth of September, and the quantity of seed 13¼ bushels.

The grain was cut with the cradle, between the 23d and 30th of June.

Two hands and two horses were engaged three days in applying manure, and one hand and team six days plowing, and one hand and team three days in sowing.

The seed was put in with the harrow and cultivator. The net amount of crop was 213 bushels.

JOSIAH GLOVER.

This crop was awarded the first premium.

J. JARVIS, *Sec'y.*

We, the undersigned, do hereby certify that we have carefully measured the field belonging to William L. Kyle, of Green township, Harrison county, on which the crop of wheat grew, a sample of which is presented, and find it to contain ten acres and thirty-eight rods. The amount of wheat was found, by accurate measurement, to be two hundred and three bushels.

E. S. MERCHANT,
JEFFERSON GLOVER.

Lime-stone soil; no manure applied; plowed the last of August and first of September; time of sowing from the fifteenth to the twentieth of September; six days plowing with one team; three days harrowing with one team; sixteen bushels of seed used; commenced harvesting June twenty-sixth and finished July first, four days, with two hands. Cut with a cradle.

WILLIAM L. KYLE.

This crop was awarded the second premium.

J. JARVIS, *Sec'y.*

Report of Crop of Flax Seed raised by A. E. Hoffman.

Expenses of raising one acre of flax, plowing, sowing and harvesting	$2 00	
Two-thirds of bushel of seed sowed per acre	2 00	
Cutting and threshing	2 00	
Proceeds of one acre 8½ bushels, at $1.91		$16 23
Time of sowing, April 15, 1865.		
	6 00	6 00
Balance		$10 23

Flax ground measured by Nathaniel Graves and Moses H. McCoy.

A. E. Hoffman,
Nathaniel Graves,
M. H. McCoy.

Sworn to and subscribed before me, this — day of October, 1865.

A. McGan, *Probate Judge.*

Statement of Planting, Cultivating and Manufacturing 85¾ *rods of Sugar Cane.*

The land was a black sandy loam; was plowed eight inches deep, about the 10th of May, then harrowed until the ground was thoroughly pulverized; furrows were drawn four feet apart, and the cane planted, about the 15th of May, pretty thick in the rows. The cane was hoed as soon as it could be fairly seen; when about four inches high cultivated and hoed again; when about two feet high plowed with double shovel plow, and the cane thinned until the stalks were six inches apart; the suckers were kept off until it began to tassel; when the seed was fully matured was cut as near the ground as possible, and the tops cut off below the last joint; was manufactured by Jonathan Rogers on one of Cook's Evaporators. The amount of molasses obtained was one hundred and fifty-three gallons from eighty-five three-fourths poles of ground, or at the rate of two hundred and eighty-five one-half gallons per acre. The land has been cleared about ten years, and a crop of corn raised on it the previous year. There was about three pints of seed planted, of what is known as the large black seeded cane.

COST OF CULTIVATION, ETC.

Plowing, harrowing, furrowing and planting	$2 00
Plowing and hoeing three times	5 00
Cutting and blading	5 00
Drawing to mill	5 00
Manufacturing 153 gallons, at 30 cents	45 90
Total cost	$62 90
153 gallons, at $1.00	153 00
Net profits	$90 10

Henry M. Fuller, being duly sworn, says he accurately measured the land upon which J. L. Thurston raised a crop of sorghum the past season, and the land is eighty-five three-fourths poles, and no more.

Henry M. Fuller.

Sworn to before me, this 29th day of November, 1865.

Alexander Mecay, *J. P.*

J. L. Thurston, being duly sworn, says that he raised a crop of sorghum the past season upon the land measured by H. M. Fuller, and the quantity of molasses raised thereon was 153 gallons, and no more, and the statements in regard to the manner of cultivation, etc., are correct, to the best of my knowledge.

J. L. THURSTON.
ALEXANDER MECAY, *J. P.*

The State of Ohio, Delaware County, ss.

Silas H. Drummond, being sworn, says he accurately measured the land upon which Warren Keezer raised a crop of sorghum the past season, and the quantity of land is one-eighth of an acre, and no more.

SILAS H. DRUMMOND.

Sworn to before me, this 27th day of November, A.D. 1865.

J. D. VAN DEMAN, *Notary Public.*

Warren Keezer, being duly sworn, says that he raised a crop of sugar cane, the past season, upon the land measured by Silas H. Drummond, and the quantity of sorghum syrup raised was thirty-seven gallons, and no more, measured in a sealed quart measure, and the statements in regard to the manner of cultivation, etc., are correct, to the best of my knowledge.

WARREN KEEZER.

Sworn to and subscribed before me, this 27th day of November, A. D. 1865.

J. D. VAN DEMAN, *Notary Public.*

STATEMENT, ETC.

I raised the foregoing crop of sugar cane in the following manner: No manure was used; the land was new clay land; never before cultivated; the seed was drilled by hand; about two feet between the rows; seed "yellow cane;" planted about the 15th of May; the ground was broken up with a two-horse plow, and harrowed; worked through once with a double shovel-plow.

EXPENSES.

Plowing, harrowing and planting	$2 00
Working through and gathering	3 75
Making into syrup	5 00
Total	$10 75

The syrup was manufactured by running the cane through iron rollers, and boiling the juice in a sheet iron evaporator.

WARREN KEEZER.

The State of Ohio, Delaware County, ss.

Silas H. Drummond, being duly sworn, says he accurately measured the land upon which Warren Keeser raised a crop of corn the past season, and the quantity of the land is three acres, and no more.

SILAS H. DRUMMOND.

Sworn to before me this 27th day of November, A. D. 1865.

J. D. VAN DEMAN, *Notary Public.*

Warner Keeser, being duly sworn, says that he raised a crop of corn the past season upon the land measured by S. H. Drummond, and the quantity of grain raised thereon was four hundred and seventeen bushels, and no more, measured in a sealed half bushel;

and the statements in regard to the manner of cultivation, &c., are correct to the best of my knowledge.
Warner Keeser.

Sworn to and subscribed before me this 27th day of November, A. D. 1865.
J. D. Van Deman, *Notary Public.*

Statement, etc.—I raised the foregoing crop of corn in the following manner: No manure was used. The kind of soil was a clay. The crop raised was the eighth crop since clearing, and the second crop since it was broken from meadow. It lay in meadow five years. The seed was drilled in the ground with a drill, scant three feet between the rows. Kind of seed, large hackberry; planted the 4th day of June. The ground was plowed with a common two-horse plow, harrowed and rolled, and the corn was worked through twice one way with a double shovel plow.

Plowing 1½ days, at $2 per day	$3 00
Harrowing, rolling and planting, at $2 per day	3 00
Working twice through, two days	3 00
Cutting up, husking and cribbing	29 37
Total expenses	$38 37

Warner Keeser.

The land on which this crop of oats was raised has been under cultivation for over thirty years. It was plowed for this crop the latter part of the month of April; harrowed once, the seed sown and the ground harrowed once crosswise, and rolled. Nothing further done until harvest.
William S. Steward.

The land on which this crop of timothy seed was raised has been under cultivation over twenty years, and under grass for six years past. No attention paid to the crop this season until it was gathered.
William S. Steward.

State of Ohio, Delaware County, ss.

Thomas C. Steward, being duly sworn, says he accurately measured the land upon which William S. Steward raised a crop of timothy seed the past season, and the quantity of the land is one acre, and no more.

Sworn to before me this twenty-fourth day of November, one thousand eight hundred and sixty-five.
Joel Cleveland, J. P.

State of Ohio, Delaware County, ss.

William S. Steward, being duly sworn, says that he raised a crop of timothy seed the past season upon the land measured by Thomas C. Steward, and the quantity of seed raised thereon was five bushels and nineteen pounds, *weighed*, and the statement in regard to the manner of cultivation, &c., are correct to the best of my knowledge.

William S. Steward.
Joel Cleveland, J. P.

State of Ohio, Delaware County, ss.

Thomas C. Steward, being duly sworn, says he accurately measured the land upon which William S. Steward raised a crop of oats the past season, and the quantity of land is three acres, and no more.

Sworn to before me this twenty-fourth day of November, one thousand eight hundred and sixty-five.
Joel Cleveland, J. P.

State of Ohio, Delaware County, ss.

William S. Steward, being duly sworn, says that he raised a crop of oats the past season upon the land measured by Thomas C. Steward, and the quantity of grain raised thereon was one hundred and fifty-six bushels (156), measured in a sealed half bushel; and the statements in regard to the manner of cultivation, &c., are correct to the best of my knowledge.

WILLIAM S. STEWARD.
JOEL CLEVELAND, J. P.

Delaware County, ss.

George Neilson, being duly sworn, says he accurately measured the land upon which George Neilson raised a crop of sorghum, or sugar cane, the past season, and the quantity of land is one-fourth of an acre, and no more.

Sworn to before me this 30th day of November, A. D. 1865.

A. STYER, *Justice of the Peace.*

George Neilson, being duly sworn, says that he raised a crop of sorghum, or sugar cane, the past season, upon the land measured by George Neilson, and the number of gallons was sixty-three, and no more; and the statements in regard to the manner of cultivation are correct to the best of my knowledge.

GEORGE NEILSON.
A STYER, *Justice of the Peace.*

I do hereby certify that I raised the crop of sorghum as follows: The ground was black loam; first crop since clearing. No manure was used. The ground was plowed with Gill's steel plow, about eight inches deep; planted on the 5th day of May, in rows three feet apart; drilled ten inches in the rows; worked once with the cultivator, once with a shovel plow, and once hoed.

COST OF RAISING.

Plowing and planting, one day	$3 00
Working, one day in all	3 00
Stripping	4 50
Working up	15 75
Total	$26 25

GEORGE NEILSON.

Delaware County, ss.

George Neilson, being duly sworn, says he accurately measured the land upon which George Neilson raised a crop of potatoes the past season, and the quantity of the land is one-fourth of an acre, and no more.

Sworn to before be this 20th day of November, A. D. 1865.

A. STYER, *Justice of the Peace.*

George Neilson, being duly sworn, says that he raised a crop of potatoes the past season upon the land measured by George Neilson, and the quantity of potatoes raised thereon was fifty-one bushels, and no more, measured in a sealed half bushel; and the statements in regard to the manner of cultivation, &c., are correct to the best of my knowledge.

GEORGE NEILSON.
A. STYER, *Justice of the Peace.*

I, George Neilson, do hereby certify that I raised the crop of potatoes in the following manner: No manure was used; the kind of soil was clay loam; only one crop had been previously raised, viz: corn. The kind of potatoes were Neshannocks and Prince Alberts, planted the 18th day of May. Ground plowed with Gill's steel plow; harrowed thoroughly; worked through three times (once with hoe and twice with plow.) Potatoes three and one-half feet, and two feet between rows. Number of potatoes in hill, three pieces, medium sized.

Plowing, harrowing and planting, one day	$3 00
Working, one day	3 00
Gathering	3 00
Total	$9 00

GEORGE NEILSON.

ABSTRACT OF REPORTS OF COUNTY SOCIETIES.

County.	President.	Treasurer.	Secretary.	Place of Fair.	Time of Fair.	Receipts of 1865.	Expenditures of 1865.	No. of members.	No. of entries.
Adams									
Allen	Josiah B. Roberts	G. W. Overmyer	J. M. Haller	Lima				387	255
Ashland	D. A. Fenn	J. B. F. Sampsel	E. Ingmanch	Ashland	Oct. 11, 12, 13			293	
Ashtabula	D. H. Prentis	J. D. Ensign	C. D. Bushnell	Jefferson	Oct. 10, 11, 12	$1,359 42	$1,243 36	289	1,023
Athens	H. B. Brawley	N. H. Vorhes	W. A. Thomas	Athens	Sept. 27, 28, 29	1,406 23	1,667 51	636	
Auglaize	H. T. Rinehart	O. T. Dicker	C. P. Davis	Wapakoneta	Oct. 12, 13	350 83	126 85		
Belmont	Jos. M. Mitchell	James A. Rinker	John Dunham			1,159 20	1,091 40	431	504
Brown	Thomas Jennings	C. F. King	D. V. Pearson	Georgetown	Sept. 12. 13, 14, 15	1,665 00	1,367 49		701
Butler	F. Anderson	James Griffin	W. R. Cochran	Hamilton	Oct. 3, 4, 5, 6	5,269 95	5,215 22		1,649
Carroll	J. L. Harsh	Wm. Thompson	R. Raley	Carrollton	Sept. 27, 28, 29	660 25	583 27	407	
Champaign	N. H. Harr	D. W. Todd	W. A. Humes	Urbana	Sept. 26, 27, 28, 29	2,345 25	2,374 10	1,300	1,500
Clark	L. B. Sprague	James Bacon				4,102 25	3,968 63	215	
Clermont	John H. Branch	W. C. Dale	W. E. Mears	Boston	Sept. 19, 20, 21, 22	2,430 00	1,320 30	1,400	1,502
Clinton	James S. Hoblet	C. A. Osborn	L. C. Walker	Wilmington	Sept. 20, 21, 22	1,581 70	1,141 62	890	530
Columbiana	C. Bowman	B. W. Pritchard	B. F. Nichols	Lisbon	Sept. 26, 27, 28	2,418 44	2,186 09	400	
Coshocton	John Miskimin	M. Johnson	W. R. Forker	Coshocton	Oct. 11, 12, 13	1,683 70	1,215 06		
Crawford									
Cuyahoga	J. M. Hecker	W. Waterman	S D. Harris						
Darke	William Turner	John Stoltz	John E. Matchett	Greenville	Sept. 28, 29, 30	3,189 95	3,038 44	1,056	
Defiance									
Delaware	Thomas T. Joy	C. B. Paul	J. D. Van Deman	Delaware	Sept. 26, 27, 28	2,409 30	1,534 42	1,072	
Erie	F. D. Parish	F. W. Cogeswell	John McKelvey	Sandusky	Oct. 11, 12, 13	2,564 69	700 03	600	
Fairfield	Joseph Sharp	D. Sifford	Tall. Slough	Lancaster	Oct.	1,738 50	1,577 00		
Fayette									
Franklin	Jared Forsman	J. M. Pugh	C. S. Glenn.	Columbus	Sept. 5, 6, 7, 8	1,080 75	1,123 17	1,000	
Fulton	Eli Phillips	O. B. Verity	S. S. Carpenter	Ottokee	Sept. 13, 14, 15	570 75	570 75	228	
Gallia	A. P. Rodgers	J. R. Calohan	L. P. Magnet						
*Geauga									
Greene	J. S. McClung		H. R. McClellean	Xenia	Sept. 27, 28, 29	1,700 00		800	1,200
Guernsey	Noah Hyatt	C. P. B. Sarchet	W. M. Farrar	Cambridge	Sept. 27, 28	259 65	330 10	193	
Hamilton									
Hancock	Geo. W. Galloway	A. W. Frederick	D. Beardsley	Findley	Oct. 5, 6, 7	905 43	852 60		

* Made no Report.

ABSTRACT OF REPORTS OF COUNTY SOCIETIES—Continued.

County.	President.	Treasurer.	Secretary.	Place of Fair.	Time of Fair.	Receipts of 1865.	Expenditures of 1865.	No. of members.	No. of entries.
Hardin	J. C. Stevens		R. F. McConnel	Kenton	Sept. 30, Oct. 1	$400 00			
Harrison	James B. Jamison	John M. Robinson	Jacob Jarvis	Cadiz	Oct. 4, 5, 6	2,415 50	$2,000 00	1,200	
Henry									
Highland	Benjamin Conrad	R. W. Spargus	E. Arthur	Hillsboro'	Oct. 4, 5, 6	1,284 00	1,111 20	116	
Hocking									
Holmes									
Huron	Alvin Brightman	C. A. Preston	G. W. Knapp	Norwalk	Sept. 20, 21, 22	1,662 42	1,856 34	255	
Jackson	G. Thompson	W. B. Steele	J. A. Sell	Jackson	Oct. 5, 6	576 23	404 12	166	
Jefferson									
Knox	C. S. Pyle	R. Thompson	R. Thompson	Mt. Vernon	Sept. 27, 28, 29	840 00	540 80		
Lake		C. S. Hoyt				1,434 71	1,105 73		
Lawrence	Wm. D. Kelly	James M. Kelly	C. B. Egnton			1,485 87	1,485 87		
Licking	David Smith	Thomas J. Davis	Isaac W. Bigelow	Newark	Oct. 4, 5, 6	3,100 00		507	
Logan		W. V. Marquis		Bellefontaine	Sept. 19, 20, 21, 22	1,501 15	850 01		
Lorain	D. A. Stocking	M. Gallup	M. Gallup	Elyria	Oct. 3, 4, 5	1,675 98	1,574 46	525	
Lucas									
Madison	William A. Neil	Peter Peetrey	Harford Toland	London	Sept 6, 7, 8	1,121 39	825 92	120	
Mahoning	George Pow	John S. Wilson	J. J. Moore	Canfield	Oct. 3, 4, 5	1,392 58	1,358 51	590	
Marion	David Pettit	John C. Davids	J. S. Mitchell	Marion	Sept. 20, 21, 22	665 65	776 61	136	
Medina	W. H. Witter	S. J. Hayslip	John McCormick	Medina	Sept 18, 19, 20				785
Meigs									
Mercer									
Miami	W. B. McLung	David Kelly	Geo. W. Morris	Troy	Sept. 20, 21, 22	1,836 74	1,768 54		
*Monroe									
Montgomery	Robert W. Steele	A. P. Stoddard	M. Eels	Dayton	Sept. 27, 28, 29	1,363 35		550	483
Morgan	John B. Stone	F. Sill	H. Dunsmoor	McConnelsv'e	Oct. 3, 4, 5	1,118 45	1,093 04	510	
Morrow	A. H. Wren	E. P. George	E. C. Chase	Mount Gilead	Oct. 3, 4, 5, 6	1,467 33	1,055 00	225	
Muskingum		V. Best	F. A. Seborn	Zanesville	Sept. 20, 21, 22	2,059 63	2,057 50		
Noble	Samuel Laughlin	W. M. Stewart	Samuel Danford	Sarahsville	Oct. 12, 13	497 60		162	
Ottawa									
*Paulding	Samuel Forders	W. M. Snook	F. S. Cable						
Perry									
Pickaway	Z. H. Perrill	John Boyer	H. B. Denny	Circleville	Sept. 20, 21, 22	1,328 50	1,270 61		
Pike									

Portage	Fred. B. Cannon	A. H. Parsons	S. D. Norton	Ravenna	Sept. 20, 21, 22	$624 96	$626 62	133	
Preble	H. W. Dooley	Joseph Fisher	James Albert	Eaton	Sept. 26, 27, 28, 29	1,744 32	1,490 25	1,008	
Putnam	John Maidlow	David Cox	L. C. Holtz	Ottawa	Sept. 27, 28, 29	315 60	193 51		
Richland		J. P. Vance	William Ritter	Mansfield	Oct. 3, 4, 5	971 65	985 14	156	536
Ross									
Sandusky	Theodore Clapp	D. W. Krebs	O. W. Vallette	Fremont	Sept. 6, 7, 8	869 52	791 43	394	467
Scioto									
Seneca	W. Lang	A. G. Sneath	E. G. Bowe	Tiffin	Sept. 26, 27, 28	1,579 74	1,166 13	700	
Shelby			J. A. Lamb	Sidney	Oct. 3, 4, 5	778 00	400 00	600	
Stark	John Peter Rex	C. Aultman	W. H. Alexander	Canton	Oct. 3, 4, 5, 6	4,902 90	4,753 94		
Summit	J. P. Alexander	G. D. Bates	J. P. Alexander	Akron	Oct. 4, 5, 6	3,527 05	2,131 17	390	
Trumbull	Henry B. Perkins	A. D. Webb	H. F. Austin	Oak Grove	Sept. 20, 21, 22	1,982 00	1,912 00	733	
Tuscarawas	U. C. Deardorf	G. B. Deardorf	E. S. Slinghuff	Canal Dover	Sept. 27, 28, 29	1,750 33	1,116 08	561	548
Union	R. D. Reed	S. S. Jewell	S. C. Lee	Marysville	Oct. 4, 5, 6	1,413 88	910 47	100	
Van Wert	Nathaniel Hattery	A. W. Baker	M. Makin		Sept. 28, 29	391 69	341 62	145	
Vinton									
Warren	John H. Evans	W. F. Parshall	G. W. Carey			2,183 57	2,059 39		
Washington									
Wayne	J. G. Troutman	John McClellan	Anthony Wright	Wooster	Oct. 4, 5, 6	1,975 70	1,652 53		
Williams	Jacob Dillman	Edwin Foster	C. W. Mykromtz	Bryan	Sept. 26, 27, 28	823 53	599 00		
Wood		John Bates	J. W. Ross	Bowl'g Green	Oct. 3, 4	265 00	180 62	210	300
Wyandot	T. V. Reber	Wesley Hedges	W. H. Jones	U. Sandusky	Sept. 27, 28, 29	1,322 05	1,157 89		

* Made no Report.

ABSTRACT OF REPORTS OF COUNTY SOCIETIES

ALLEN COUNTY.

After a lapse of three years, "or during the war," the "Allen County Agricultural Society" was called from refreshment to labor, and held its Third Annual Exhibition on the Fair Grounds at Lima, in September. Although only about thirty days elapsed, between the time of giving notice and the time of holding the Fair, it was a success beyond the expectation of the most sanguine. The interest manifested by those in attendance exceeded that of all former exhibitions.

The show of horses and cattle was not large, but of the best stock.

The show of sheep and hogs, as to numbers and quality, was most excellent.

The Ladies' Department was filled to overflowing with all that was useful and ornamental, and reflected great credit on the managers of that department.

The Society intend inclosing 20 acres the coming season, and make arrangements for a perfect out-pouring of people at the next exhibition.

The number of members for the year 1865, 387; the number of entries made, 255.

ASHLAND COUNTY.

The Ashland County Agricultural Society submit the following as their annual report for the year 1865:

There were no competitors on field crops at the last annual fair, and hence no report can be made. Hay will nearly double that of 1864. I would estimate the amount of hay at 30,000 tons. The defect in the wheat crop was caused by weevil and rust. The potato crop will not exceed that of 1864. The lands of this county is made up of every variety of soil. On the same farm of 150 acres may frequently be found land suitable for every kind of agriculture. The best corn lands have produced over 100 bushels of shelled corn to the acre; but on the high oak lands, from 25 to 40 bushels of shelled corn to the acre is a very fair average.

The attention of farmers of this county is now being directed to the raising of horses and sheep—especially the latter, of which there is probably no better stock in the State; cattle and hogs have been very much neglected for a few years past.

During the war but little attention was paid to the Agricultural Society; but the last annual fair, held in October, was a perfect success—being equal, if not superior, to any ever held in the county. The officers of the Society during the present year have labored under discouraging circumstances. The lease on their former fair-ground had expired, and they were without funds either to purchase, rent, or fit up new grounds, and, in view of the high price of labor and material, it seemed almost impossible to accomplish anything. But, with commendable zeal and energy, they have succeeded beyond their own expectations, and, from present indications, the prospect of future success of the Society is very favorable.

ASHTABULA COUNTY.

The 19th Annual Fair of this Society was held at Jefferson, October 10th, 11th and 12th. Although rather late in the season, the weather was very fine and the attendance large. The entries in the several departments were as follows: Horses, 164; cattle, 52; jacks and mules, 3; swine and poultry, 19; sheep, 96; vegetables, 93; fruits, 21; farm implements, 13; mechanical productions, 40; dairy products, 8; ladie's contributions, 339; fine arts and ornamental, 83; miscellaneous, 92. Total entries, 1,023.

The show of sheep exceeded any former exhibition, our farmers having within the last three or four years paid considerable attention to wool growing, and with very marked success. The present year the Society held a sheep-shearing fair, which resulted in giving the wool-growing interests a healthful stimulus.

The entries in dairy products were unaccountably meager, as butter and cheese has always been considered the staple product of the county. This season cheese alone can be safely estimated at 5,000,000 pounds.

The soil of the county is adapted to most all branches of husbandry; the townships bordering on the lake to the raising of wheat, corn, oats and most all kinds of grain, potatoes and fruits; the middle and southern townships to grazing and dairying. In the lake townships, potatoes were very bountiful the present season, and in some localities, all kinds of fruit, with the exception of peaches. The hay crop throughout the county was never better. The principal crops may be estimated at about the following: Wheat, 15 bushels per acre; corn, 55 bushels; oats, 30 bushels: potatoes, 150 bushels.

On the clay soil, potatoes were pretty nearly a failure, on account of wet weather.

The late frosts in spring destroyed the apple crop, with exceptions of the lake townships, and the peach crop was an entire failure.

The grasshopper has been very destructive to fall sown grain, totally destroying some pieces. In general the season has been very fruitful, and good crops have rewarded the farmer for his toil.

The Society is now clear of debt, and with ample halls and grounds to display the products of the soil and industrial pursuits. The Society can well look forword to a cheerful and useful future.

ATHENS COUNTY.

No statements received in regard to crops and other improvements in agriculture.

During the last year the Society has beed engaged in the work of improving the grounds by enlarging the same and completing a good half mile race track, which adds greatly to the interest of the Society. Also other improvements of great importance have been made.

The number of members for 1865 is 636.

To the farmers of Athens county the year 1865 has been one of prosperity. All the products of the farm have brought remunerative prices. Our land in this county can not be said to have any standard value, and prices range from $10 to $200 per acre, according as the owner or purchaser is infected with the oil fever, which has raged fearfully during the past year, but at this date is subsiding considerably.

Our wheat crop, in consequence of wet weather, rust and scab, was rather a light crop, and a crop and grain second rate in quality.

Contrary to our early anticipations, on account of the very wet spring and early summer, our corn became a decidedly good crop, and never in the history of corn raising was a crop harvested in such good condition. Scarcely a mouldy or unripe ear was to be found. This is the more extraordinary, as some, in consequence of wet weather, was planted very late. But all ripened fine and sound. Potatoes, on dry lands, and where not infected with bugs, were very fine, while on bottoms that were overflowed and neighborhood visited by the potato bug, there was an entire failure.

Not so much attention has been paid to the raising of oats as formerly, but wherever sown this season, they produced a very fine crop. Of buckwheat, flax and turnips, we scarce raise a sufficient amount to give an idea of their quality or quantity.

Most of our meadows yielded a fair crop. Some old meadows have been injured by the grub worm for the last two or three years, and in consequence yielded light crops, some not worth cutting.

Fall pasture most excellent, and at this present writing (Dec. 22d) but little dry food has been used.

Labor has been very high, somewhat in consequence of oil speculators paying high for hands; but, thanks to improved machinery, we have got along pretty well.

Our lands being somewhat rough and liable to wash, our farmers are turning their attention more to grazing than formerly, making cattle and horses, with sheep and wool, our chief articles of export.

Of minerals, we export considerable quantities of salt and coal.

At our fair, in September, in all the departments of stock, we did very fine. Span after span of beautiful match horses were driven into the ring, and so equally were they matched, it became a difficult matter to decide which was best. Our roadsters in harness and under the saddle excelled anything we have yet presented for the inspection of the public. The mile was made in two minutes and forty-four seconds, and this on a new track, with one or two very abrupt angles. Of stock horses, stallions, brood mares and young horses, we had a great many and those very good.

But in young and grown cattle we showed so well that an old drover from another county said he never saw so many good young cattle at any State or County Fair.

Our exhibition of sheep was splendid. By continued importations from abroad, Vermont and elsewhere, our stock now, we think, is second to none in the State. In times gone by we thought it very extravagant to pay ten or fifteen dollars for a buck, and now we are not alarmed if a hundred dollars is asked for one sheep. We have not the hardihood as yet to ask a thousand dollars for a buck, although we have the sheep. We have got our fleeces from two and a half and three lbs. up to five, five and a half, and, in some instances, six lbs., and these figures for whole flocks.

As to swine, we just want it understood that we stump the State of Ohio, if the "Old Captain*" will turn out as he did at our fair, with his parsely fed Chester, weighing about four hundred lbs., and shoats to match, which were bought at the fair to send to Chicago and other places in the west.

Our halls were not filled so well as on some former occasions. But when we consider that the interest was kept up for three days, it speaks well for our Society and its progress, nearly doubling its receipts within a few year.

Of fruit we had but a small quantity. Apples were a failure except the Putnam Russet; that bore tolerably well. Of peaches—on high ground we had a tolerably fair crop, Of pears and cultivated plums we had not enough to make a report necessary.

All passed off without anything like a disturbance. Every body enjoyed themselves first rate.

We expended several hundred dollars in enlarging our grounds, and making a half mile track.

We now have some three hundred dollars in the treasury for the coming year.

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*Ezra Phillips, of Ames township.

AUGLAIZE COUNTY.

Our last Fair was held October 12th and 13th There were no competitors for premiums on crops or agricultural improvements.

The Society, or its managers, have been faithfully endeavoring, during the past year, to purchase a Fair Ground and to obtain the necessary means to do so. I am happy to be able to report that the Society will undoubtedly be in possession of their own grounds on which to hold their next annual fair.

Our wheat crops were severely injured by the weevil the past season, and yielded, on an average, about eight bushels per acre. The yield of other grain crops was large. Potatoes were a failure on account of the wet season.

The number of acres under cultivation will be largely increased the coming season.

BELMONT COUNTY.

I present herewith an account of the last Annual Fair of the Belmont Agricultural Society. There was no competition for premiums on crops. It will be seen by the Treasurer's report that the receipts for the year 1865, amount to $1,159.20 against $461 40 the previous year. The number of members is four hundred and thirty-one, against two hundred and ten in 1864. The weather was fine, the attendance large, and the success of the exhibition equaled the expectations of the most sanguine. At no time in the history of our Society have our farmers felt so deep an interest in its prosperity.

Wheat, corn, oats and hay are the principal crops raised; but rye, barley, sorghum, clover and timothy seeds, and tobacco, are raised in considerable quantities.

Since the failure in the wheat crop the farmers of this county have turned their attention to sheep-raising, and as it has been paying them very well, there has not been so much plowing done as formerly.

From all the information I can gather on the subject, I am of the opinion the yield of wheat per acre will not exceed, if it reaches, seven bushels. Oats has done better, the crop is considered equal to forty bushels per acre. Corn is an *extra*, good crop, fifty-five to sixty bushels to the acre would, perhaps, not be too high an estimate. Hay has also turned out well, average, probably, one and one-half tons per acre; *quality good.*

Fruit, except cherries and pears, has been an entire failure here. Potatoes turned out badly, and in some localities rotted. Sorghum done very well; in one instance making at the rate of three hundred and twenty gallons to the acre.

The past season has been remarkably favorable to the growth of all crops raised in the county, and the warm, dry fall enabled farmers to secure them in good order.

BROWN COUNTY.

The officers of the Brown County Agricultural Society take pleasure in submitting the following report for the year A. D. 1865:

The Sixteenth Annual Exhibition was held in September, on their Fair Grounds, near Georgetown. The Exhibition was very largely attended by the farmers, mechanics and merchants of the county, all of whom manifest much interest in the cause of agriculture, and seemed to be more determined than ever to improve in the mode of conducting their agricultural pursuits.

It is a fact, worthy of notice, that we had, at our last Fair, the finest exhibition of geldings (over four years old, for all works, twenty in number,) that has ever been on exhibition in this part of the State. The display in the floral department, the domestic, the mechanical, and the vegetable, was the best, by far, that we have ever had in the county.

The corn crop in this county has never been better, as our most aged citizens will readily testify to; and it has been consumed by hogs, cattle and horses, thus diverting the use of it from the usual channel of having it made into whisky.

The wheat crop in this county was very poor, not coming up to the usual average by one-half; the cause of which has been attributed to the extreme wet season, the fly in autumn and the smut.

The oats crop was very good, also the hay crop, neither having been excelled within the last twenty years.

This county produces a large quantity of a good quality of tobacco, and the farmers are blessed this year with a very fine yield, the greater portion of which have been already sold for very high prices, thus increasing the wealth of our county quite rapidly. We have, in the southern portion of our county, many German citizens, who are generally engaged in producing wine of the best quality. By the industry, intelligence and frugality of these Germans, much has been added to the wealth, enterprise and prosperity of the county.

BUTLER COUNTY.

In compliance with the rules and regulations prescribed by the State Board of Agriculture, we herewith present the following report of the Butler County Agricultural Society:

The Fifteenth Annual Fair of the Society was held on the Fair Grounds, near the city of Hamilton, on the 3d, 4th, 5th and sixth days of October, A. D. 1865.

The following statement of the number of entries and the amount of premiums offered in the several departments, will show that our Fair was, in all respects, an entire success:

Department.	No. Entries.	Premiums Offered.
Cattle	72	$227
Horses	351	686
Jacks and mules	20	43
Swine	71	154
Sheep	95	198
Poultry	30	9
Agricultural machinery	18	119
Farming implements	16	37
Implements for soil	36	94
Vehicles and other implements	21	67
Mechanics' work, not metal	16	58
" " metal	18	34
Domestic manufactures	56	66
" articles	35	34
Sugar, molasses, honey, &c	70	31
Needle, sheel and fancy work	116	44
Field crops, (not closed till January 13)	—	154
Grain, seeds, &c	128	62
Roots and other vegetables	124	35
Articles preserved, canned, &c	243	36
Fruits, &c	53	31

Department.	No. Entries.	Premiums Offered.
Flowers in pots, &c.	—	31
" cut	23	26
Fine arts and miscellaneous	37	21
Total	1,149	$2,697

There is kept no recorded list of the number and names of the members of the Society, as by our rules and regulations the payment of $1.00, annually, constitutes any resident of the county a member of the Society, entitling him to vote, upon presenting to the judges of the election his admission ticket; and we have not as yet experienced any great inconvenience or injustice, as the Society has now become one of the permanent institutions of the county, and all her citizens are directly interested in its prosperity and welfare.

The entries for competition for premiums for field crops not being yet closed, and no awards of premiums to be made on same until January 13th inst., we have no statements of mode of culture, &c., &c., ready for this report.

The principal crops of the county are wheat, barley and corn. Tobacco is raised to some extent in certain localities (not as a general crop); hay, oats, sorghum, potatoes, &c., are generally raised as a crop, but only for home consumption. We have no statistical data for the amount of crops raised, nor for average per acre; but from information gained by members of the Board from different sections of the county, the wheat and barley crops were found to fall far below an average, both in quantity and quality, chiefly attributable to the continued excessively wet weather during the first part of summer, and from injury while in shock. The corn crop, on the same account, made a poor start in the spring, and, in the flat lands, a poor stand, but from the very favorable autum, was above an average crop, both in quantity and quality. The early sown of the growing wheat crop has been, in most sections of the county, much injured by the "fly," and dry weather during the fall. Hay, oats, potatoes, and all other vegetables, in unusual abundance. The apple and the grape crop an entire failure, owing to the same cause. Peaches, in very favorable localities, made a fine yield, but was of short duration, and made but a tolerable show at our Fair.

Our Society is now in full tide of successful operation, and has and is still awakening a deeper interest and increasing competition in all the useful and elegant pursuits of industry, as was manifested at our Fair by the increased number and improvement in all the departments of agricultural, mechanical and domestic manufactures. Nor is its influence confined alone to our own county, as our Fair was open for competition "to the world." And we are happy to acknowledge a spirited but generous rivalry from the adjoining counties in Ohio and Indiana, but are still proud to know that in all our agricultural enterprize and progress, as in all else that tends to promote the happiness, peace and prosperity of our common country, "Old Butler" is still victorious.

CARROLL COUNTY.

The annual Fair of the Society was held on the Fair grounds near Carrollten, Carroll county, Ohio, on the 27th, 28th and 29th days of September, 1865. No statements of competitors on crops, &c., made; in fact no entries for premiums.

The number of members is 407, exceeding the number of members during any previous year for many years; and, in general, the Society has been in a more flourishing condition than heretofore. The main interest of the members, though, is in sheep and horses—the Spanish sheep being the most popular, and the Hiatoga horses the same.

The principal crops raised in this county are hay, corn, oats, wheat and potatoes. Hay very good; corn the same: oats, average; wheat quite poor, and potatoes below average. Many of the potatoes were hurt very much with the rot. Wheat injured by frost and weevil very much.

CHAMPAIGN COUNTY.

The Board held their Fair in September. The weather was fair and the attendance large. The Board during the year have held eight regular meetings, at each of which a large majority was in attendance. When the present Board was elected and came into office, they found not only the treasury empty, but the Society in debt about $600. This discouraging state of the finances did not in the least discourage them. But they at once set about to devise means by which to elevate the interests of agriculture, and stimulate the people to take an active interest in the Fair. The old catalogue of premiums, which had heretofore been offered, was revised. Some premiums that had been offered were stricken out, and some that were considered too small were enlarged. The Board took especial pains to talk over the subject of the Fair with the farmers of the townships which they respectively represented. Everybody seemed to wake up, and to wish a system of more general liberality to be introduced. A fund of about $500 was raised by individual subscription, and placed in the hands of the Board to enable them to offer more liberal premiums on certain classes of stock This was done, and for those premiums offered out of this extra fund the gates were thrown open for competition from other counties, and competitors were present from all parts of the State. These extra premiums, together with the liberal premiums offered to competitors within the county, had the desired effect. The result was, our Fair was a grand success. And when it closed, our treasury was sufficiently replenished to pay the full amount of premiums awarded (nearly one thousand dollars), defray the expenses incurred the present year, and will be able, with the assistance of the county appropriation, to wipe out the old debt that has been weighing down and hemming in the Society for several years. The treasurer's report is very gratifying to the retiring Board, who have been zealous in the cause. At present the Society can be said to be in good condition. Members' tickets sold at last Fair numbered about (1300) thirteen hundred, and about fifteen hundred (1500) entries were made. And at present Champaign is, without a doubt, awake to the interests of agriculture.

The principal crops raised in the county the last year were wheat, corn, barley, rye, oats, buckwheat, potatoes, and Chinese sugar cane. The wheat crop, though in some neighborhoods was very fine, in others it was very poor, which will make the average yield in the county between ten and twelve bushels to the acre. The corn crop was good—never better; and we think we are safe in saying that the average yield was fifty bushels to the acre. The barley crop was not heavy, but is below the average yield. The oats crop was abundant, never was known to be better; the yield was heavy; it grew to a good height, stood up, and ripened early. Not much rye was raised, but wherever grown the crop was good. The potato crop, had it not been for the rot, would have been heavy. A few varieties escaped the rot; and though the crop was shortened, there is plenty left for home consumption and seed. The variety called the Peach Blow was not known to rot in any locality. Chinese sugar cane, or sorghum, was raised to a considerable extent, though no sugar was made. Much improvement has been made in making the syrup, or molasses.

Farmers seem to be taking a greater interest in the raising of fine stock than ever before. The show of cattle, horses, sheep and hogs at our Fair was encouraging, and shows clearly that the breeding of fine stock is occupying the attention of the farmers generally. And from present appearances, our county will soon rank with those which now claim to be the first in agricultural products and stock breeding.

CLARK COUNTY.

On the 28th day of January, 1864, the present Board was elected, to serve for one year, which they have done, with but two or three exceptions. These having resigned, their places were filled with prompt and energetic men by the action of the present Board.

This newly elected Board held its first meeting February 11th, 1865, and at that meeting resolved to hold their meetings once every month, (which they have since done,) instead of once every two months, as had previously been the practice, in order thereby to keep up a more perfect organization, and have the minds of its members more promptly fixed upon their duties, which plan proved to be a success, as, notwithstanding the unfavorable weather they had to contend with upon the arrival of the time for their exhibition. the entries in the various classes were numerous generally, and the attendance and patronage great.

The subsequent meetings of the Board were all generally well attended by its members, and matters of business were promptly attended to, and all seemed to work together like a band of brothers, harmoniously and without a single jar.

In reference to the prospects, progress and usefulness of the Society, we have to say, in point of prospects good, progress improving, usefulness great. And if this Society remains to be properly conducted, we are not afraid of this verdict being changed only for the better.

The principal crops raised in our county are corn, wheat, rye, oats, barley and hay. The yield of each per acre was as follows: Corn, 40 bushels per acre; wheat, 10; rye, 18; oats, 25; hay, 1¼ tons; barley, 40 bushels.

The striking characteristics of the season were a very wet and late spring; summer fine growing weather, but more rain than usual; fall late and delightful; winter so far pleasant and mild, with but little snow. There being no insects the present or past season of any consequence to injure any of the above-described crops, farmers therefore could not complain of this annoyance; but the plague, called the rust, on wheat, rye and oats, gave rise to some complaint, as well as the unusual wet summer, causing potatoes to rot, would give some uneasiness in reference to this crop.

CLERMONT COUNTY.

The Clermont County Agricultural Society held its Seventeenth Annual Fair at Boston (Owensville P. O.,) in September. This being the second exhibition on our new grounds, and the first after the war, much anxiety was felt for its success, and every preparation made by the Board for the accommodation of all classes of exhibiters. Several new stables were added in the horse department; the sheep pens were increased; the track improved; wells and pumps put in complete order, and another large refreshment stand erected. In the floral department an unique frame work was erected, on the top of which a reservoir was placed to supply water for a beautiful lake and fountain inside the hall. This part of our exhibition still continues to be the leading one—the entries being between eight and nine hundred, and more than half the entire number which, perhaps, were greater than at any former exhibition of the Society.

It is a difficult matter to please everybody, and it may not be surprising to learn that objections were urged against the removal of our "traps" from the old fossilized grounds of Olive Branch; not that the grounds themselves were not adapted to the purposes designed; but there seemed to be a fatality attending the location, and

> "There is a divinity that shapes our ends,
> Rough hew them as we may."

Following the inspiration of the time, the Board, in the midst of a most dreadful war, with an accumulated debt of years hanging over them, the grumbling of the disappointed muttering in their ears, the fears and forebodings of the timid causing the courage of the brave almost to waver, *resolved to purchase new ground.* The year 1864 will ever be memorable in the history of Clermont agriculture. The effort was a complete success.

The attendance this year on the third day of the Fair was believed to be the largest gathering of the people ever held in Clermont county, yet during the entire day, amid the mighty throng, not an incident occurred to mar the universal pleasure of the occasion.

All classes were represented, and reasonable competition manifested. There was a decided improvement in the horse show over any former show, and would have compared favorably with any county show in the State. Mules of all ages were on exhibition, and several spans seemed to possess all the qualities desirable in a *mule*—size, strength, action and color.

The swine show was only moderate; cattle not satisfactory; sheep better than any former exhibition; poultry much improved. Mechanical Hall well filled and well arranged.

The list of premiums offered by the Society embraced every branch of industry, and amounted to some fifteen hundred dollars—only about two-thirds of this amount competed for.

Another great feature of our Society is the spring exhibitions, held this year the first week in June, for the display of strawberries and roses, and the exhibition of trotting and pacing horses. It must be borne in mind that Clermont is one of the largest fruit producing counties in the State. Our reputation for peaches is known far and wide, and we bid fair to become equally famous in the production of strawberries. We are always prepared to bear off the highest premiums offered by the Cincinnati Horticultural Society on strawberries. Apples, pears, quinces, raspberries, blackberries, currants, gooseberries and grapes are being extensively planted.

The June exhibition this year was the second held by the Society. At our first one the receipts amounted to only forty dollars, but the show was a very good one. In 1865

our receipts for admission and refreshment privileges amounted to............	$621 81
Premiums and incidental expenses..	502 32
Balance	119 49

Making our profits for the year over $1,200.

The meetings of the Board have been promptly attended, much good feeling manifested between the members, with an unflinching determination to promote the best interests of the Society.

Corn is still the leading crop in this county, amounting in the aggregate to about one million of bushels.

Our county contains about 300,000 acres of land, valued, at present selling rates, at $12,000,000.

The number of entries made and premiums awarded are as follows:

	No. Entries.	No. Premiums.
Cattle	12	9
Horses	168	47
Ponies	4	2
Jacks and mules	37	16
Sheep	34	31
Swine	21	14
Poultry	26	15
Mechanical and Agricultural Hall	323	137
Floral Hall	839	298
Miscellaneous	38	12

Total membership for the year 1865, 1,400.

In conclusion, we think—nay, we know—our Agricultural Society is exerting a beneficial influence upon all who come in contact with its labors; for the most obdurate and hardened old fogy in the land will privately practice improvements and adopt new ideas when there is money to be made by it, though he may never have the manliness to acknowledge the source from which he derived his advantages.

In regard to the proposed Agricultural College we have hoped and prayed that our authorities would be governed by *good horse sense* in all the preliminaries of the institution. We want a practical education—one that will qualify our sons for the practical duties of life—no silk glove affair that teaches that labor is *disreputable*, as, in *effect*, most of our literary institutions do.

Expecting to live long enough to see agriculture and the mechanic arts placed high above the *lazy professions*, I close this report.

CLINTON COUNTY.

The Sixteenth Annual Fair of the Clinton County Agricultural Society was held in September, on their Fair Grounds near Wilmington. We are gratified to report that the various departments of agriculture were well represented—good exhibition of stock and in all things entirely successful. The receipts exceeded those of any year past since the organization of the Society. We had no statements of competitors on improvements in agriculture to report, and no entries of field-crops. The principal crops raised in our county are corn, wheat, oats and potatoes.

Corn, average about 48 bushels per acre; wheat, 9 bushels per acre; oats, average of 20 bushels per acre; hay a very large crop, average 2¼ tons per acre; barley, not much grown; buckwheat, not much produced; potatoes—prospects were good, but injured in the ground by rot—average 40 bushels per acre; butter, a good quality—281,431 lbs.; cheese, mostly consumed in the county, 16,361 lbs.; sorghum, 55,500 gallons of molasses; maple sugar, 112,299 lbs.; maple molasses, 7,179 gallons.

Our crops were not injured the past year by insects; wheat, however, materially injured by rust. The past year was favorable to most crops; the first part of the season, however, was wet, but the lateness of the fall gave time for the corn crop to mature. No improvements, worthy of notice, in agriculture in our county, nor none in agricultural implements, nor in household manufactures during the last year.

COLUMBIANA COUNTY.

The Sixteenth Annual Fair of the Society was held on the Fair Grounds at New Lisbon, in September. The weather was all that could be desired, and the number of vis itors was greater than we have had for many years. The reason of this is the cessation of hostilities and the return of many of our citizens to the peaceable avocations of life.

The prospects of the progress of the Society bid fair to increase for a few years at least; but the usefulness and permanency of the Society must depend much upon the infusion of a knowledge of the *real* objects of the Society, as a great many now consider it a matter of dollars and cents in the *premium money* alone, which is certainly a minor matter.

The striking characteristics of the past season have been extreme wet and abundance of pasture and other feed—particularly hay and corn. The consequences of which are that a large amount of stock, particularly sheep, are being wintered in this county.

Our annual exhibition in September was not so creditable as it should have been. In the department of sheep and horses it was very good. Of sheep there was a very marked improvement over any previous season.

COSHOCTON COUNTY.

The Fourteenth Annual Fair of the Coshocton County Agricultural Society was held at the Society's grounds on the 11th, 12th and 13th days of October, 1865. The weather was fine and the attendance good. The number of members for the year, 563.

The show of Shorrthorns was not quite so large as on some former occasions. However, we had some fine specimens on exhibition.

The show of sheep was large, among which were to be found Merinos, Southdowns, Cotswolds and Leicesters. The competition in Merinos was greatest—in fact it was very difficult in some cases for the committees to decide among the many fine animals on exhibition.

The number of horses on exhibition was large; principally saddle horses and roadsters.

The display of fruit for this county was the poorest ever had, on account of the late frost in the spring.

No improvement worthy of note in agriculture or agricultural implements, nor household manufactures during the year. No competition for field crops.

The wheat crop has been the poorest in quantity and quality for many years—attributable to the wet weather of last winter and summer.

The assets of the Society, including interest on money loaned, is about two thousand dollars. The officers have recently purchased a lot of 20 acres near the town of Coshocton, for the purpose of improving it for a fair-ground, for the sum of $3,200. The Society pays $1,500 of the purchase money down, the remainder in four annual installments with interest, relying on the remaining assets of the Society, together with an amount agreed to be furnished by the County Commissioners of $1,000, with donations from individuals, to enable them to fit up the grounds for holding its fair in 1866.

CUYAHOGA COUNTY.

The Cuyahoga County Agricultural Society, at their annual meeting, January, 1865, elected a Board of Officers for the year.

The lease of our fair-grounds having expired, the buildings were sold, and all the business of the Society settled up. In consequence of a series of discouragements, no fair was held this season.

DARKE COUNTY.

The Agricultural Society of this county held its tenth exhibition on the 28th, 29th and 30th days of September, on their old grounds near Greenville, after a suspension since 1861, there having been no fair held in this county since that time, the whole attention of our people having been taken up in suppressing the rebellion. As soon as that was accomplished the farmers and mechanics immediately looked to the great interest of agriculture; and our Fair, after so long an interval, was one of the most interesting ever held by the Society. The exhibition of stock was perhaps not so extensive as at former fairs, but excelled in quality. The display of horses was very good. Our display of cereals and vegetables was not so good as formerly, having been very much damaged by the wet weather during the forepart of the season. The wheat crop was very much injured while in shock, as were the oats and barley. The potato crop was almost a total failure, having rotted in the ground before maturity in consequence of the wet. The corn crop, however, was the heaviest crop produced in this county, and of the finest quality, many farms yielding a hundred bushels to the acre of good sound corn.

The Horticultural Department and Foral Hall, under the supervision of the ladies of our place and county, was very tastefully arranged and finely decorated, making a most admirable display of fruits and flowers, together with the handiwork of the mothers and sisters of our farmers and mechanics.

The exhibition of agricultural implements in the Mechanical Department was very good and extensive, but not as much competition for premiums as was desirable.

DELAWARE COUNTY.

The past year has been one of unusual success to the Society. The object of the Board has been to discourage "horse-racing" and "shows," and to make the Society what it should be—an organization for the encouragement of agriculture. The wisdom of that action is shown in the improved financial condition of the Society—the number of members amounting now to 1,072, and the overwhelming attendance during the whole three days of the Fair. The universal expression is, "I exhibit not for the premium, but to do what I can to make the Fair interesting." Hence the Fruit, Vegetable and Mechanical Departments attracted almost as much attention as the Horse or Cattle Ring. With this general interest shown, the prospects of its progress and usefulness cannot but be most flattering.

The principal crops raised in the county are wheat, corn, oats, potatoes, sorghum, flax, hay and fruit (including, apples, pears, peaches, etc.). It is impossible to give an estimate of each raised, though everything raised, except wheat and fruit, was unprecedentedly large. The average yield per acre of corn will be not far from forty bushels, of oats, thirty bushels, of potatoes, seventy-five bushels, though the latter suffered much from rot, particularly Neshannocs. The striking characteristics of the previous season were very seasonable rains and a very late fall We suffered but little from insects this season.

ERIE COUNTY.

No fairs were held, nor reports made, by the Erie County Society for the four years preceding 1865. The ommission was not the result of any lack of interest in the general subject of agriculture, or in agricultural societies, but solely from an unfortunate diversity of views and feelings in respect to the re-location of the Fair Grounds, in connection with the state of the country.

The Society, for the first time, remained inactive. Early last spring it was reorganized. and the Fair Grounds ordered to be located in the vicinity of Sandusky. It was also resolved to hold a fair in the fall. A committee was appointed to procure and fit up grounds for the purpose. The committee, however, met with unexpected difficulty in obtaining suitable grounds, and did not succeed until some time in August.

The piece of land at length procured lies just outside the southern limits of the city, consisting of about ten acres of level land, and is mostly covered with a handsome grove of timber of second growth.

The grounds were hastily fitted up in a tasteful and commodious style, substantially inclosed, and capacious and durable buildings were erected. The track for the exhibition of horses and carriages is nearly one-half mile in length, quite level and smooth, and of ample width. We feel warranted in saying that few, if any, grounds in the State will be found equal to those of Erie County.

The Fair was held on the 11th, 12th and 13th days of October, and notwithstanding the very brief notice, it proved to be a complete success. The exhibition, in most departments, was not merely respectable, but quite superior, both as to quantity and quality. The show of vegetables, fruits and berries was pronounced, by competent judges, from outside the county, to have been evidently in advance of our last State Fair. The apples and the grapes were particularly distinguished for their quantity and quality.

The prospects of the Society for future success and usefulness are now brighter far than they were in its palmiest days of prosperity, during its first organization.

The aggregate receipts for membership, at the gates and incidentals, amounted to two thousand four hundred and forty-two dollars and thirty-three cents ($2,442 33), being about twice the amount ever received at any previous fair held in the county.

In consequence of the late period of obtaining grounds and publishing the list of proffered premiums, no premiums were proposed and none awarded for field crops.

Agriculture and all departments of industry in the county are in a highly flourishing condition. The crops of the past season have been generally abundant, and of excellent quality. That of buckwheat is believed to be the only one falling below that of the previous years. It was owing to a failure in filling out. The quantity sown was as large as usual. The potato rot was present in some localities to a limited extent.

The produce of the last year has been much in advance of that of the year previous. That of fruit one-half to two-thirds less The principal crops usually grown in the county are wheat, oats, corn, barley, potatoes, &c., &c. The quantity of sorghum grown is increasing from year to year. Vineyards are also rapidly multiplying and enlarging every successive year. There are doubtless 2,500 acres in grapes in Erie county.

We have not the needed data from which to give the quantity of the different crops produced in the county the past season.

FAIRFIELD COUNTY.

Statements of Competitors for Premiums on Crops, etc.—The awarding committee on crops, utterly disregarding the rule of the State Board and our Society, failed to require statements to be furnished by competitors for premiums in this class. In future the Society will give this matter especial attention.

Proceedings of the Society.—In January, 1865, officers for the Fairfield County Agricultural Society were elected for the then ensuing year.

The officers used every exertion to make the last Fair held by the Society a success, and they congratulate themselves that their efforts were at least reasonably well rewarded.

The receipts of the Society at the last Fair were sufficient to enable it to pay all unpaid premiums awarded at the Fair held in 1864, to pay all expenses and premiums of the last Fair, and to leave a handsome surplus in the treasury—enough to pay for building a good two-story dwelling house on the Fair Grounds. It is the purpose of the Society to put some good, faithful and trustworthy man in this dwelling house, and allow him the rent for taking care of the grounds.

The Society this year cut and cured on the Fair Grounds about twelve tons of hay—more than twice as much as was required to feed the stock exhibited at the Fair.

During the last year the Society has had in its employ a man to take charge of the grounds, and they were never in better condition.

Its "prospects of progress and usefulness" may be said to be reasonably encouraging.

PRINCIPAL CROPS RAISED.—The principal crops raised in Fairfield County are wheat, corn, rye, barley, oats, flax, buckwheat and sorghum.

The Society has not the means to estimate the amount of each crop raised, nor the average yield per acre. The only striking characteristics of the last season are that it was unusually late, both in its commencement and in its close, and that late in June frost injured and destroyed much of the wheat.

The Society has no information that any of the crops raised in the county have been injured to any considerable extent by insects of any species or denomination.

FRANKLIN COUNTY.

In accordance with the provision of the "act for the encouragement of agriculture," passed Februry 28, 1846, I herewith present the annual report of the Franklin County Agricultural Society for 1865:

The annual Fair was held on the 5th, 6th, 7th and 8th of September, 1865, one week prior to the State Fair, and, probably owing to this fact, was not a success. The exhibition was a worthy one, but the turn out of the people was very slim.

The Society is still in debt, owing some $800. The grounds of the Society, which are eligibly situated near the city of Columbus, are in good order and well improved, and are worth at least $12,000. The number of members have fallen off during the last year, and we can now only report about 1,000. No premiums are offered on crops, for the reason that no competition in this line has occurred for a number of years.

During the past season our farming community have been eminently successful in raising crops. The largest yield has probably been potatoes, the Peach-blow and Neshannock being the principal, the latter having some disposition to rot, while the former has stood the test and remained unharmed. The dry weather of the past fall gave ample opportunity for husking and storing away corn, of which there was a good yield. The yield of wheat was an average one. The coming crop of wheat is reported to be highly favorable.

The meetings of our Society for several years past have been very slimly attended, thus creating the impression that but little interest was manifested in its success by those who should be so interested. Efforts will be made for a better and larger attendand at the coming meeting.

FULTON COUNTY.

The Fulton County Agricultural Society held its Eighth Annual Fair on the Society's grounds at Ottokee, on Wednesday, Thursday and Friday, September 13th, 14th and 15th. The fair was in every respect a great success—more entries having been made, more premiums being awarded, and more visitors attending than at any previous fair ever held in Fulton county.

Wednesday, the first day of the fair, opened with a clear sky, and fine prospect for the exhibition. The officers of the Society had done everything within their power to make the fair attractive. The arrangements were all completed, and that too more perfectly than on any similar occasion in our county. During the entire day the Secretary's office was crowded with exhibiters making entries, and at night the Secretary's books showed more entries in nearly every department than at the close of the first day of any previous fairs.

Thursday, the second day, was a very busy day indeed. The weather was perfectly delightful, and everything passed off very pleasantly. At noon the Secretary closed the entry-books with the following number of entries:

Thoroughbred horses, 14 entries Competent judges of blooded horses pronounce the exhibition in this department very creditable; horses for all work, 56 entries; matched horses and mares, 70 entries—making a total in the department of horses of 140 entries. Of jacks and mules there were 11 entries.

The cattle department was not very full—nothing of what Fulton county is able to do in the way of exibiting fine stock. One reason why there was not a better display of cattle was the exceeding warm weather rendering it almost impossible to drive cattle. Of blood cattle there were 10 entries; grade cattle, 4 entries; working and fat cattle, 17 entries—making a total of 31 entries in this department.

Sheep and wool. This department was very full. The exhibition of sheep, both as to quality and number, exceeding any previous exhibition. In this department there were 35 entries, and, it must be remembered, that a majority of the entries included five, and some of them eighteen sheep.

Swine—but one *grunter* was on the ground; of course he took the premium.

Poultry. In this department there were 8 entries, and as they came by pairs there were sixteen *cacklers* on the ground. They were fine-looking birds too, tempting to the palate even of a preacher.

Field crops, 7 entries. The premiums in this class have not yet been awarded, but are to be determined by the Executive Board at their January meeting.

Vegetables, a very fine display indeed. There were 64 entries; and as they were made up by the twelves and fifteens, of course the display was large

Our old friend Adamson, as usual, was on the ground with his splendid variety of vegetables. Friend A. is one of the best gardeners in northwestern Ohio. He found, however, in the person of L. N. Chatfield, of Ottokee, a competitor that was able to produce mammoth vegetables, and that took the second premium on the best and largest display of vegetables.

Dairy products—not as full as usual. The weather was too warm for butter. The display of cheese, sorghum sugar and syrup, grape, currant and pie-plant wine, currant and apple jelly, was very fine. In this department there were 13 entries.

Fruit. In this department there were 40 entries, nearly all of them had six varieties, and six in each variety, making a very fine display. Indeed we think the display of fruit was hard to beat. The choice apples, splendid pears, luscious peaches, the great varieties of grapes, quinces, water-melons, musk-melons, etc., made it a very desirable position to be on the awarding committee in this class.

Of household fabrics the display was very creditable. Twenty-three entries were made in this department, including blankets, flannel cloth, silk and patchwork quilts, any amount of stocking-yarn, socks, mittens, gloves, etc.

Flowers and plants, 13 entries—making the best display of flowers we have seen for some time at a county fair.

Ornamental needlework, 25 entries, making a very fine display indeed. Mrs. Elvira Skeels had some eight different articles of ornamental needlework, which proved to be a very attractive part of the exhibition.

Drawing and painting but three entries.

Best cultivators and arranged farms, etc., three entries. The premiums will be awarded by the Executive Board at their January meeting.

Riding and driving, 13 entres. Miss Mary Hays took the first premium and Miss Nancy Robinson the second, for riding on horseback.

Plowing. E. Hinkle took the first and E. C. Daniel the second premium.

Total number of entries 458. The number of visitors in attendance on the second day was very large. The Treasurer's books also showed an increase in the number of membership tickets sold. The third day opened with a drizzling rain indicating a wet day, but notwithstanding the ominous prospects of the weather at an early hour, the people began to pour in. At nine o'clock the clouds parted and the king of day shone out, and from that time until twelve, such a rush of people as came pouring into our Fair, was never before seen in Fulton county. The officers of the Society felt relieved of all anxiety. The Fair was a decided success. With a very few exceptions everything passed off pleasantly. All felt that we had had a good Fair, and nearly all returned to their homes, looking forward to the next farmers' and mechanics' festival, as a time when they will again be permitted to come together to advance the great agricultural interests of our rapidly developing county.

GREENE COUNTY.

The Twenty-Sixth Annual Fair of the Greene County Agricultural Society was held September 27th, 28th and 29th, on the Fair Grounds near Xenia. No efforts on the part of the Board were spared to have a good fair. The weather was propitious, and the people came in crowds. The attendance was larger than usual—it was in fact a reunion, everybody feeling happy that they could come together after so long a distraction in our governmental affairs. The number of entries was 1,200. The stock on exhibition was very fine; in fact as for horses, I do not believe we can be excelled in the State, having Ben Butler in the ring. In the sheep department there was the largest and best show we have ever had. We have 800 members. Financially, and otherwise, our Fair was a success The receipts were $1,700.

The wheat crop was rather below the average, but the corn, oats and flax were very good—corn, perhaps, never better. Potatoes rotted badly; apples scarce: peaches and pears abundant.

I have, in conclusion, to say that the Greene County Agricultural Society has been of great usefulness in this county, and the people are determined to keep it up.

GUERNSEY COUNTY.

The Seventeenth Annual Fair of the Guernsey County Agricultural Sociey was held at Cambridge, on Thursday and Friday, September 27th and 28th. The weather was pleasant, the attendance large, and the Fair successful. There were no competitors for premiums on crops, or improvements in agriculture, etc., etc.

Draft and saddle horses were few, the demand for the army having taken the best of that class of horses; there were but few on exhibition; and the premiums offered not being sufficiently large to bring out fast saddle horses and nags, the moralizing effect of a horse race was wanting. The entries consisted mostly of stallions, brood mares, and colts from one to four years old; of the last named, there were some very fine and promising animals, showing that considerable attention is given to that kind of stock.

There were not a great number of cattle, but the entries were of fine blooded, valuabl stock, showing that only the best breeds are now raised by those who pay any attentention to the raising of cattle.

The hogs were mostly of Chester Whites, which at this time seems to be the favorite breed raised in this county; and if those on exhibition were fair specimens of the breed, no finer stock need be sought for.

There has been some complaint about (diphtheria) among the hogs. It prevails mostly about towns and villages, and mostly affects hogs that are allowed to run at large, and feed on the garbage, etc., found on the streets.

Sheep were the interesting feature of the Fair. All sections of the county were well represented, and the fine specimens of Spanish, Merinos, Leicesters, Cotswolds and Southdowns, show that wool-growing is fast becoming the leading business with farmers in this county, the lands of which are so well adapted to grazing sheep.

Apples and peaches were almost an entire failure in this county, yet some fine specimens saved in favorable localities, were on exhibition, and though not equal to the usual exhibition of fruit in this county, surpassed that shown at the late State Fair. We believe that Guernsey is one of the finest fruit counties in Ohio. Of late years great attention has been paid to the cultivation of choice varieties of apples, peaches, pears, plums and small fruits generally; and many of those orchards of selected fruit are now in bearing, and the character of the fruit is excellent.

Of grapes little can be said. A number of vineyards have been planted, but are not sufficiently advanced to tell how successful they will prove.

There is not so much wheat sown as formerly, the uncertainty attending the crop has caused farmers to turn their attention to crops less liable to failure. Very little barley or rye grown. Oats were abundant, but the wet weather injured it much before it could be harvested The corn crop was abundant.

Such a season for pasture was never known—even the highways afforded fine grazing until the middle of November. Farmers generally grow their own clover and timothy seed, but raise very little for sale.

Vegetables were abundant and fine. In some neighborhoods there were complaints of the potato-rot, but it did not appear to be general throughout the county.

There are no agricultural implements of any consequence manufactured in this county.

HANCOCK COUNTY.

The Fourteenth Annual Fair was held at Findley on the 5th, 6th and 7th days of October, 1865, and as compared with former years, it was pecuniarily a success; but as an exhibition of agricultural and mechanical products, it was a failure.

Although the past has been a year of plenty, and the seasons were favorable for the maturing of farm products, and although the membership of the Society is about three times that of 1864, and the attendance at this Fair much larger, and the receipts thrice those of that year, yet for some unexplained reason the show of articles was much more meager than that of any year since 1859.

The receipts for tickets alone were about $720. We were enabled to liquidate all of our indebtedness.

The farmers of our county are in a highly prosperous condition. Crops were considerably damaged last year—wheat by the rust, potatoes by rot. Corn was good. The agricultural interests are receiving a greater share of that attention due them.

HARDIN COUNTY.

The Fourteenth Annual Fair was held on the last day of September and first day of October, and was highly creditable to the county. The members number more than at any former period, and the receipts were larger. A few months of peace made a favorable showing for agriculture. The articles on exhibition showed a decided improvement. Agriculture in this county is making slow but sure progress, owing to the fact that it is comparatively a new county. But the Society cannot expect to attain that eminence or usefulness so much desired by its true friends, until the grounds and buildings are materially enlarged. They are really disgraceful to our people and county. Many of the officers have made commendable exertions in behalf of these improvements, but have met with opposition from the old pioneers (or fogies, if you please.) I have faith, however, that things will loom up within a year or two.

Agriculture being the most profitable, useful and honorable calling of man, to me it appears there should be no reason why it should not make at least as good if not a better showing than any other. The only reason it has not, is the fact that the education of the farmers' sons has been shamefully neglected. It is to be hoped that the Legislature will take early steps to remedy this evil, by providing our people with one or more colleges under the act of Congress of July, 1862.

The wheat was quite a failure, owing to the wet weather in June, causing it to rust. Corn is a full average, say thirty-five bushels per acre. Pastures and meadows were unusually good, the latter averaging at least one and one-half tons per acre. Potatoes and fruit crop very light. Sheep have been decidedly improved in quality and quantity. I cannot say so much for cattle and other stock. If ten years to come do as much for our county as ten years that have just passed, I entertain no fears but that she will rank among the first in the State.

HARRISON COUNTY.

The Eighteenth Annual Fair of the Harrison County Agricultural Society was held at Cadiz on the 4th, 5th and 6th days of October, A. D. 1865. We were again favored with fine weather, and the people, as they have been wont to do, turned out in great numbers. Never before were our Fair grounds thronged with people more than on this occasion. The "Soldier Boys" had generally returned home from the army, and this appeared to be a good opportunity for them to meet together, and to relate to each other and the "fair ones" the scenes that occurred on the battle field, in the camp, and the southern prison. Before the Fair came on, it was anticipated by some of our citizens that the soldiers would be unwelcome visitors at our Fair; that by this time they would become so reckless, dissipated and wicked, that they would feel disposed to greatly annoy at least a portion of our citizens. But this was not so. The soldiers were there in great numbers, but they were there as men—they were there as gentlemen—they were there as patterns of good behavior to some who were never in the army. Never, in our opinion, had we a more civil and respectable gathering of the people of our county than at this Fair. It appeared to be days of general rejoicing by all, both soldiers and citizens. Jeff. Davis and the whole Southern Confederacy had got a sound thrashing, and the "Stars and Stripes" were again waving over every State in the Union.

We now think that the prospects of our Society are very flattering (if properly managed) for success and usefulness. We had the usual amount of entries made this year, in all the various departments—considerably above two thousand. At this, as at every other exhibition held in our county, the horse exhibiters seemed to get up the greatest interest, at least to the spectators. The show of horses was very good. Take our horses, from the sucking colt to the well developed horse, and we challenge any county in the State to produce better ones The show of cattle and hogs was not so good. The display of sheep was far ahead of anything before seen at our Fair. Every class was well represented, from the ewe and buck lamb to the well developed sheep. The variety of sheep bred from in our county now, as a general thing. is the Spanish. This variety has both carcass and fleece, which is a thing much desired among our sheep or wool growers. We have now in our county sheep producing an aggregate of about 800,000 pounds of wool, worth in our market about $600,000. From this it will be seen that one great source of income to our county is from the raising of sheep. In conclusion upon this part of this report, we would just state that we think that "Old Harrison" can raise as many sheep, and of as good a quality, as any other county or territory of like size in the United States.

Wheat the last year was almost a failure, in consequence of the midge, or weevil. There is not more than one-half enough raised to supply the county. Some years ago, when the weevil made its appearance first into our county, it was thought by farmers generally, that early varieties of wheat were less liable to the ravages of the weevil. Thereupon the Mediterranean was selected by the farmers, generally, as the kind that would succeed, as it ripened several days earlier than the finer varieties of wheat. In a few years the weevil almost entirely disappeared. The people then began to abandon the Mediterranean, and in its stead, sow some of the white varieties of smooth wheat, which was the case last year. And notwithstanding the wheat last year ripened ten days earlier than usual, yet it was almost destroyed by weevil—demonstrating to us, conclusively, that it don't depend upon the time of ripening as to whether the weevil will destroy it, but it probably depends more upon the variety sown. The corn crop, in Harrison this year, was never better. There was a good yield and an excellent quality; yield, about fifty-five bushels per acre. The crop of oats this year was hardly an average crop. The hay crop last harvest was unusually good, though a great quantity of it was put up in bad order. Yield per acre, about three and one-half tons.

There was quite a number of entries made of corn crops, but the competitors failed to make a written statement of their "mode of tillage," and consequently no premiums were awarded.

HIGHLAND COUNTY.

The Society, for the past two or three years, seemed to be on the decline. This was more especially the case during the last year, when the receipts fell short of the expenditures, thus increasing, instead of diminishing, the heavy debt hanging over the Society.

But a year ago some signs of an agricultural *revival* were visible, the result of which was the election of a new Board of Managers in January last, who, by untiring devotion to the cause, have succeeded in holding one of the most successful Fairs that has been held by the Society since the rebellion.

The show of horses was highly creditable to the county. A very decided improvement has been made in this class within the past few years. The show of cattle, too, was the best we have had for years. It will be observed, by reference to the premium list, that we abolished all grades of cattle, offering premiums for the best bull, best cow, &c., of any breed, thus making all breeds stand on their own merits.

This alteration was induced from the fact that we have but few except the short horns and their grades among us, and but few, if any, of them that could be strictly rated thoroughbred.

Much credit is due to a few enterprising citizens of the county who first introduced the short horns. They are now very generally bred in the county, and, as cattle are raised here principally for beef, it needs no argument to prove their superiority for that purpose.

The exhibition of mules, jacks, &c , was such as to show a decided improvement in this class of stock.

There were but few swine on exhibition, but the quality was excellent. There has been a marked improvement in the breed of hogs within a few years past.

There were no sheep on exhibition, though there is a large increase in the number owned in the county. There has also been a decided improvement in the quality in the last few years.

The exhibition of farm implements was but poor, as there is no extensive manufactory of implements and machinery in the county, but it is to be hoped that this will not be the case much longer.

The department of the fair under the management of the ladies, we feel assured, can not be surpassed by any county in the State.

Our spacious hall was filled to overflowing with farm products, household and domestic fabrics, food, condiments, delicacies, flowers, paintings and needle work. For industry and taste in these articles our ladies have always been proverbial. But at the last fair, more than their usual interest was manifested, making a display rarely, if ever, witnessed before at a County Fair.

Wheat is one of the great staples of the county. It appears that in 1857 Highland was the second county in the State in the production of wheat;—we now find her standing the twelfth in rank as a wheat growing county. This fact, as shown by the published statistics of the State, will naturally lead to inquiry after the cause of this great falling off. Is there less breadth sown? I think not. I find that the average per acre in 1863 was 9.63 bushels, and in 1864 it was but 8.35, and this year (1865) it will be much less.

I find by the same table of statistics that in 1863 Highland was fourth in rank as a corn growing county. By the returns for 1848 she is second in the quantity of corn raised, being exceeded by Ross only. In hogs she was then fourth, and in 1863 the third, being exceeded by Ross and Pickaway only. This heavy yield of corn is not owing to the peculiar fitness of her soil for that staple, as a large portion of the land is rolling and hilly, though we have some strong bottom lands well adapted to the growth of corn. The yield is the result of over-farming, as the average per acre for 1863 is but a fraction over thirty bushels per acre, and in 1864 but 23.48 bushels.

While we are thus occupying an apparently honorable position as corn growers, we find that in the number of acres sown in clover we rank as the fifty-fourth county in the State. This, I think, is the great secret of the falling off in the wheat crop.

A large portion of our land, though not naturally poor if properly tilled, is of too thin a quality to bear so heavy a drain as the vast amount of hogs that are annually driven off. Some means must be resorted to to replace in the soil the large amount of phosphates, ammonia and other constituents of corn, thus annually carried off.

Experience proves the necessity of a change in the mode of farming. especially on our poorer lands. We see a few isolated cases where farmers have, within a few years, moved among us from other States, where the improvement of land has become a necessity, and have settled on land that had been considered nearly or quite worn out by the original settlers, so that in an ordinary season it would not average ten bushels of corn to the acre These men have pursued a different system of farming. They sow clover and wheat as their principal crops, plow deep, and cultivate well what little corn they do raise. The result is a marked improvement in the productiveness of their lands. In fact some of these farms are now, after a few years of this kind of tillage, among the best producing farms in the county.

In reporting the crops for the past year, I can say that the amount of corn, grass and oats was much greater than ever raised before in the county. The season was peculiarly adapted to the growth of these crops on the thinner uplands of the county. Wheat was seriously injured by the hot showery weather of June and the first few days of July —the very cause that induced such a vigorous growth of corn and other summer crops.

Much attention has been paid for a few years to the growing of sorghum, and manufacturing into syrup. Last year an unusual amount was planted, and the season being favorable, the quantity and quality of syrup was far better than any former year. The improvement in the quality of the syrup was perhaps owing more to the improved skill in manufacturing than to the season.

Potatoes were better than they had been for a few years past, but as a general thing this useful crop falls far short of what it was ten or twelve years ago. The apple crop was almost an entire failure. Peaches were reasonably plenty.

The productions of the county find a market in Cincinnati, to which they are carried by the Cincinnati and Marietta railroad, the main line of which passes through the rich lands of the northern part of the county, and a branch runs from Hillsboro', near the centre of the county, to the main line at Blanchester, thus offering easy facilities for the transportation of the products of the entire county, so that the prices of produce vary but little from city prices.

HURON COUNTY.

The Eleventh Annual Fair of the Huron County Agricultural Society was held at Norwalk, on the 20th, 21st and 22d days of September, 1865. The Fair was well attended by the people, but the exhibition was not as good as that of the previous year.

The Society has made no change in its rules and regulations, or improvements on its grounds or buildings, during the year past.

The future prospects of the Society is hopeful, although there is not as much interest manifested, at present, by the people, for its prosperity, as is desirable by those who take an active part in keeping alive the agricultural improvement in the county. But few of the many who attend our Fairs, from year to year, bringing anything from their well stocked farms, or workshops or gardens, to contribute to the exhibition at their County Fair—from this numerous class of people is heard the complaint that fairs are a failure and a cheat—if so, they, alone, are at fault, for they have done nothing to make their fairs otherwise.

The principal crops raised in this county, are wheat, corn, oats, barley, sorghum and potatoes. The wheat crop was damaged by the freezing and thawing during the spring months, followed by the very wet season. The crop was harvested and secured in a very damp and wet condition. The yield was light and of poor and inferior quality. All other crops were good and were secured in fair condition. The corn crop was very large and of the best quality.

The average yield of crops per acre can not be stated at this time. The necessary facts and statistics are collected by the assessors in the spring of next year.

There have been no destructive insects with us to injure crops the past season. The condition of agriculture in this county is prosperous and progressive.

JACKSON COUNTY.

The Eleventh Annual Fair of the Jackson County Agricultural Society was held at Jackson, on the 5th and 6th days of October, 1865. The Fair was a success the weather beautiful, and the number in attendance unusually large. Quietness and good order prevailed during the exhibition.

The show of horses by far excelled that of any previous fair; the stock was in good condition, and the pedigrees show that some of the best blooded horses are raised in the county.

Of cattle, the show was much the largest ever had; in good condition; of nice symmetry, and of improved grades.

The display of hogs and sheep was good and improving.

Exhibition at domestic hall fell short of an average fair.

It is believed that the Society is doing much good in the county by distributing liberal premiums at its annual fairs. It gets up an honest spirit of emulation, among the farmers and producers, to excel each other in the production of articles that are good and useful.

Corn, wheat, oats, potatoes, hay and rye, are the principal crops grown in Jackson county. Corn crop, a good one; estimated amount of crop planted 18,000 acres; yield per acre, 35 bushels; raised in the county, 630,000 bushels. Wheat, almost a failure, 16,000 acres sown; average yield per acre, four bushels—64,000 bushels. Oats, an average crop; yield, 25 bushels per acre; 2,500 acres sown; amount raised, 60,500 bushels. Potatoes, a moderate crop; yield, 100 bushels per acre; planted, 310 acres—31,000 bushels. Hay, good crop; about 8,000 acres harvested; whole yield, 10,000 tuns. Rye, not much raised in the county.

The past season has been one of much interest to the farmer. The spring opened very wet, backward and cold, which delayed farm operations very much, and, in some instances, lessened the amount planted; yet we have plenty to subsist on and some to spare.

The striking characteristics of the past season was remarkable for its wetness. But few injuries from insects; the wire worm and grasshopper done a little mischief in a few localities.

KNOX COUNTY.

The Annual Fair of the Knox County Agricultural Society was held on its Fair grounds at Mount Vernon, Ohio, on the 27th, 28th and 29th days of September, 1865, and although there was no Fair held the previous year, still the attendance this year exceeded the most sanguine expectations of the officers of the Society.

The exhibition of horses and sheep was very large, and very encouraging. That of cattle was not so large, but the stock shown was the best. The crops generally have been better than for several years past.

LAWRENCE COUNTY.

Our Society has not been in a condition for several years to report any progress until this fall. In 1861 arrangements were made to hold a Fair. The Fair grounds were put in order, a premium list published, and buildings, fences, &c., put in complete repair, at a very considerable expense. But just before the time for the Fair, our grounds were taken possession of by the military authorities, and a regiment of soldiers quartered there long enough to destroy everything that would burn, except what buildings they needed for shelter. So we had no Fair, and the Society worse in debt than before.

In 1862 another effort was made; buildings repaired, grounds put in order, premium list published—and another lot of Uncle Sam's boys had a gay time, cooking rations with the proceeds of our Society's credit. And we had no Fair that year.

In 1863 and 1864 the excitement along the border, and the continued drafts upon our county for soldiers, in some townships taking the last man, and the embarrased state of our finances, made it impossible to hold a Fair, and no attempt was made.

In the spring of 1865 a meeting of the Society was called, and a feeling of interest manifested which seemed to warrant another effort. The result was, in one aspect of the case, very gratifying. Our Fair was held on the 27th, 28th and 29th of September. The weather was fine, and the people turned out in such crowds that but few seemed to notice what a poor show we had. In fact it was a pretty good show—to see the crowd. All seemed in good spirits, and relished the matter as a huge joke, and went home satisfied. Our premium list was small, and our list of premiums still smaller; and of those awarded, about one-third were donated to the Society.

But few of our farmers expected much of the Fair, and consequently the number of competitors for premiums was very limited, and no statements of any general interest were furnished.

A good degree of interest was manifested in the general prosperity of the Society, and as our Fair was a decided financial success, we have reason to anticipate good results for the coming year. Our membership numbers 407.

The western half of our county, though best adapted to fruit and wool growing, is mainly devoted to the manufacture of pig iron, and turns out probably as much of that staple as the same amount of territory in any part of the country. The mining of coal is also becoming a very important interest with us. The eastern portion of the county is best adapted to the production of fruit, wheat, corn, grass, oats and potatoes, all of which find ready sale at high prices in the manufacturing districts of the county, and on that account less attention has been paid to stock raising, than in some other counties where the soil is no better adapted to it than ours.

The wheat crop the past season has been light. Corn unusually good. Grass and oats about an average yield. Potatoes good, and no rot among them. Peaches in some parts of the county a good crop, in others a total failure. Apples a general failure throughout the county. The peach grub and curculio have destroyed a large share of our fruit the past year.

LICKING COUNTY.

The Licking County Agricultural Society held their annual Fair on the 4th, 5th and 6th days of October, 1865, at their grounds near Newark, known as the Old Fort. The weather was all that could be expected. The attendance was larger than at any previous Fair, an evidence that the people of Licking county are fully appreciative of the many benefits to be derived from a fair exhibition of the products and manufactures of our people; and the honest competition of our farm products, cattle, horses, and other stock, has stimulated our people in the development and improvement of the products of the soil, in mechanism and stock breeding, so that we can say with just pride that Licking county is second to none in the State in its farm products or the skill of her mechanics. The pedigree of her horses or cattle will compare with any in the State; and for fine and thoroughbred sheep we justly pride ourselves, and say that in this line we challenge the world, *Vermont* included.

The display in number and quality of sheep surpassed any of our previous county Fairs, and was fully equal to the exhibition of the State Fair. Messrs. Eli Keller, S. S. Matthews, and several others, exhibited some of their world-renowned Merinos, including the celebrated Merino ram "Hibbard," and ewes "Beauty," "Queen of the West," and "Little Princess," owned by Mr. Keller. The display of horses—thoroughbreds, roadsters and matched teams—was excellent. The cattle stalls were fuller than ever before, and the principal exhibition in this line. Messrs. Montgomery and Stark, and George J. Hagerty, exhibited the finest cattle it has ever before been our lot to see. The display of hogs was not what it should have been, and it is to be deplored that our farmers manifest so little interest in so important a branch. The display of poultry was limited, and not very creditable to our people, with the present high prices of poultry. The farmer should certainly devote more attention to their improvement.

Our wheat crop was rather light—not as heavy as former years; 15 bushels per acre. Considerable of the crop was injured by rust along the outer edges of the field, and late frosts in the spring injured it very materially. The crops of rye and barley would compare favorably with other years. Our corn crop was excellent, averaging 40 bushels per acre. Insects did not trouble our crops to any extent.

Our farmers are paying much attention to raising sorghum, and there has been a very large increase both of quantity and quality. As the art of refining the sorghum molasses is being discovered and improved, the article is fast becoming a staple, and promises in a short time to supercede the imported sugars and molasses, and teaches the Ohio farmer to rely upon his own home product for a luxury heretofore imported.

The potato crop was largely increased in quantity, and the farmers have been experimenting in quality. The Peach Blow, Neshannock and Shotwell are still the favorites, and promise long to be so.

Our farmers are interesting themselves in mule raising, and much competition was manifested at our Fair, it being a new experiment. The exhibition was, to say the least, creditable; and we can say with safety that hereafter Licking county promises to vie with the most celebrated regions of Kentucky in the development of the mule species.

The hay crop was unprecedentedly large, being double in quantity and quality to last year. The oats crop was an average.

The Mechanical Department was well represented, as was also Floral and Fine Arts Hall; also the Hall devoted to the display of household fabrics and domestic manufactures. The energetic housewife and artist are at all times ready to contribute their handiwork to stimulate the development of American arts and industry.

Our Society, financially, is in a flourishing condition, with our membership annually increasing. We can at least hope that, with continued industry, our Society will in a few years take a ranking position among the county societies of the State. Our grounds are surpassed by none for beauty and convenience, and nothing stands in the way of ultimate success and prosperity. We had no competition on field crops.

I would here add that a small brown bug, similar in color to the plum curculio, has made its appearance in our turnip patches with sad havoc, destroying the turnip crop seriously. It operates with a sting, after which the turnip withers.

LOGAN COUNTY.

Logan county held its Fifteenth Annual Fair at the Society's grounds, near Bellefontaine, on the 19th, 20th, 21st and 22d days of September, 1865.

LORAIN COUNTY.

The Lorain County Agricultural Society held their twentieth annual fair on their grounds at Elyria, October 3d, 4th and 5th, 1865. The people were out in great numbers. The first day the weather was very cold and inclement. The second day the weather was tolerably fair, and with it came the people in swarms, with their horses, cattle, sheep and swine, and almost every other article ever seen at a county fair, apparently with a determination to have a good time any way.

The third day the weather being fine, the people again thronged to the grounds, eager for the contest for sweepstakes in the different departments of stock.

We do not make the horse ring altogether the leading feature or attraction of our fair, as is generally supposed, although there was a great interest taken in that department by persons having many very fine, light carriage horses and roadsters in the county to exhibit, consequently there is not enough attention paid to the rearing of horses for all work and draught purposes.

The cattle ring was a very great attraction during this fair, there being several herds of Shorthorns and Herefords on exhibition. R. Baker, Root, Redington. Byington, D. A. Stocking and G. R. Star being the principal exhibiters of Shorthorns, Aston, Cross and Humphreys of Herefords, and Beck and Tucker of the Devons of the third class, which is rather on the wane, and ought to be over the Rhine.

Of sheep there was a very fine display, especially of the long-wooled breeds in pens. Of Liecesters, Cotswolds and Downs there was a great competition. There were not as many pens of fine-wooled sheep as usual. We know no reason why, unless they were afraid that the wet storms we usually have at our county fair, would wet through their blankets and dissolve the gum on the wool upon their backs, so that it would run off and lessen the weight of their fleeces at their annual shearing. At all events they did not come as usual.

Of hogs, a fine display; mules and jacks, fair; of poultry, light.

Our Halls were all well filled but the fruit hall, the crop being short. Grapes were shown in great abundance, proving again that the southern shore of Lake Erie is the best locality for the successful raising ot that fruit.

Sorghum good and increasing every year. Dairy products not large but high priced. Hay crop badly got in but large; corn large and sound; oats good; potatoes fair; wheat a failure.

Col. Harris, of the Ohio Cultivator, was present, and was introduced to the people by George Washburn, of the Democrat, and gave us an agricultural address, and also Albert Harris, of the Leader.

MADISON COUNTY.

The last annual fair was held the first week in September, and although the adjoining counties held fairs at the same time, our show of horses, sheep and cattle was the best for many years, and the attendance and receipts larger than of any preceding year.

There were no entries of field crops. The crops of the county were unusually large, and with the aid of machinery were all safely harvested.

MAHONING COUNTY.

The annual fair of said society was held in Canfield, Ohio, October 3d, 4th and 5th.

Total expenditures, $1,358.51, of which $464.98 was applied to the payment of debts owing by the society, the same being now fully paid off, leaving the financial affairs of the society in a better condition than ever before. The first day of the fair was devoted to the entering of stock and all articles for exhibition. The whole number of entries made was 833, which compares favorably with any preceding year.

The second day was devoted to the exhibition of all the classes except three in horses. The attendance was larger than on any former occasion, and the fair passed off unusually well.

The third day was devoted to the exhibition of horses. The attendance was good, and the number of entries being altogether 235—larger than on any previous occasion. Taking the exhibition altogether, it was a success.

We have no reports or data from which to give an estimate of crops, but would say that the fall crops were poor, owing to late frosts and effects of the weevil. The summer crop including grass was more than an ordinary one. There is not so much attention paid by farmers in this county, to the raising of grain as of stock, the soil being better adapted to grazing than farming.

MARION COUNTY.

The fair was held at the fair grounds on the 20th, 21st and 22d days of September, 1865, with pleasant fair weather and attendance tolerably good. Our grounds were very much out of repair, and necessarily requiring a large expenditure for improvements thereon.

No premiums were offered on crops, and we have no means of giving the average yield per acre, or any statistical statement in relation thereto.

MEDINA COUNTY.

The Medina County Fair was held on the 17th, 18th, 19th and 20th days of September, 1865.

A score of years have come and gone since the Medina County Agricultural Society was organized, during which period the citizens of the county have experienced the changes of sunshine and fog—of prosperity and adversity—of seasons fruitful and unfruitful, and those of joy and sadness. Each passing year has witnessed the rallying of the citizens to the County Fair, and there imparting and learning lessons of profit and progress. The toil, perseverance and economy of the farmer have gained for him a high position. Near by stand the shops and implements of the ingenious mechanic, whose anvil daily rings, or whose plane quickly makes the tools that the farmer requires. Not far distant stands the wheel, the spindle and loom of the cautious manufacturer, daily, honestly and honorably employed in warping and weaving what is gleaned from the fleecy flocks of the farmer. Lastly in view appears the water and iron roads, along which drift the accumulated commerce of an industrious people.

The man who, in 1818, felled the forest, never supposed that in 1865 he would see or witness the improvements now made. The mechanic of forty years ago never expected to see a saw, or mill, or wheels propelled by steam. Merchants never expected to see trade shipped from here to New York in less than three days. Matrons never supposed the day to come when the foot, not the hand, should drive the needle.

But a change has resulted in all branches of industry. The farmer now rides when reaping and mowing; the mechanic calls steam to his aid, and the merchant uses the telegraph to convey his requests and the iron horse to carry his merchandize. The old spinning wheel is supplanted by the flying shuttle; the ox team gives place to the carriage; and machinery does the churning. A great revolution has taken place in every branch of industry.

Since the first Fair was held in the Court House, advances in every industrious calling have resulted, and the prices of articles consumed have risen. In 1845 the horse was valued at $70, the cow $16, the hog $6, and the sheep $3. Now for similar animals the price is tripled. In 1846 the cash received at the Fair amounted to $212, and the premiums paid to $175. Now, any township in the county could introduce stock more than sufficient to require the payment of premiums to that amount. At the first Fair ten cattle, twenty sheep, eleven horses and nine hogs comprised what was then admired by the visiting throng. Contrast that Fair with the one just closed, and some estimate may be made of our progress.

In most of the classes there were many articles truly worthy, and well calculated to inspire future effort; in no class was there any article unworthy of being exhibited. The Fair throughout was one of merit, and the competition spirited but laudable.

Wheat: the crop was a partial failure. Corn, a great yield of excellent quality. Oats more than an average yield. Rye not considered a crop by most persons. Clover seed a full yield, amply paying the cultivator. Potatoes an average crop of good quality. Cattle: not many counties on the Reserve can show better grades of stock. Horses: although the war diminished the number, those on hand are of choice kinds. Sheep: the number is diminished; the quality on hand is good. Hogs: more attention paid to raising and selling hogs than in former years. Fruits: apples and peaches a failure; grapes were a full yield. Garden products: a full yield of vegetables that seemed to refuse growing, although often reminded so to do by the nipping of frost.

MIAMI COUNTY.

The Nineteenth Annual Fair was held on the 20th, 21st and 22d days of September. Memberships 795, being an increase of 283 over last year.

Corn a heavy yield, and of most excellent quality. Wheat a poor yield and inferior quality; almost an entire failure on wheat stubble. Oats an excellent crop. Barley, rye, flax seed and clover were an average crop. Fruit an entire failure. Fruit trees in Miami county have been so much damaged by past cold winters that it will take quite a number of years to bring up the quality of fruit to where it was some ten years ago. No competition on field crops.

MORGAN COUNTY.

The Society held its Thirteenth Annual Fair at the Fair grounds owned by the Society on the 3d, 4th and 5th days of October, A. D. 1865. The attendance was better than for several years past. The exhibition of stock, viz: horses, cattle, sheep and swine, was good; the sheep, especially, were considered the best ever exhibited by the Society.

The farm products were not as largely represented as desired, but were creditable to the exhibiters. Some good specimens of mechanical work were exhibited. Household manufactures were fairly represented.

The display of fruits was not so extensive as in more favorable seasons, yet some specimens of good fruit were exhibited.

The number of members enrolled is 510, an increase of 200 over last year.

There are some small claims, such as the compensation of the Secretary and his assistants, and the amount of the Treasurer's compensation, which have not yet been paid. The Society has now paid nearly all its debts. The annual payment from the county treasury will be sufficient to pay the entire debt of the Society. The Society will then own eleven acres of prime land within less than one mile from the Court House, with a front on the Muskingum river (said land is said to be worth $200 per acre); has a hall, built by the Society, that cost $900; also a large building, 80 by 30 feet, called the Farmers' Hall. There is also eighty good stalls for stock.

CROPS.—Crops were generally good. Wheat rather light. Corn very good; also oats. Grapes abundant. No data to give average of crops per acre.

MONTGOMERY COUNTY.

The Thirteenth Annual Fair of the Montgomery County Agricultural Society was held on the grounds of the Society, near Dayton, on the 27th, 28th and 29th of September. This Fair was a decided improvement upon the exhibitions of the last two years, and the managers feel highly encouraged in the prospect for the future.

The principal crops of this county are wheat, rye, barley, corn, flax, potatoes and tobacco. There is also considerable broom corn and sorghum grown. Potatoes and tobacco have been a slim crop this year, but the corn crop is rather more than an average one.

Our exhibition of horses was very creditable, and we are warranted in the assertion that the interest in blooded horses is on the increase in our county.

The display of cattle was poor, and we may say that not much interest is taken in the improvement of breeds, save by a limited number of farmers. The display of swine, also of fine and long wooled sheep, though not extensive, was very creditable.

In farming implements and mechanics' work the display was excellent, and indicates that the manufacturing interests of this county are decidedly on the increase.

The floral department was, for some reason, sadly deficient; though it is a fact that had sufficient interest been manifested, no county in the State possesses the ability for a better display.

MORROW COUNTY.

The Society was never more flourishing than at the present time, either financially or otherwise. We number for the year 225 members. Our receipts for last Fair amount to $1,467.33. The general usefulness of the Society is vastly on the increase.

The principal crops are corn, oats, wheat and hay. Average of corn, 40 bushels; wheat, 10 bushels; oats, 30 bushels; hay, 1½ tons; potatoes, 150 bushels; considerable rotted. An increased interest is manifested in the growth of the sorghum crop. The past season was favorable for the maturity of most of the crops. Not as much complaint of insects as heretofore. Farmers are becoming more systematic. Some progress in small fruits, such as grapes, strawberries, blackberries, &c. On the whole, the general agriculture of the county is on the increase.

MUSKINGUM COUNTY.

The crops grown in this county have, the past year, been of an average character with the exceptions of wheat and hay. The former has been nearly a failure and will not average more than seven bushels to the acre sown, and that generally of an inferior quality, while the latter has been the most abundant crop for many years; but some of it has been injured by wet weather. Of oats, the crop has been an average one. Of corn there was more than an average crop, both as regards quantity and quality. The long continued fine weather served to ripen it more fully than it has ripened for many years.

Potatoes have, in many instances, been affected with the rot, and the promise of the spring has not been realized in the gathered crop.

Fruit was a general failure, excepting that, in some localities, there were peaches of a fine quality.

Sorghum is becoming a very common as well as a very profitable crop. Thousands of gallons of excellent syrup have been made, and, in some instances, the manufacture of sugar has been attempted. At our last Fair, M. H. Weller, of Fultonham, in this county, presented some fine specimens of clarified, or rather semi-clarified, sugar made by himself, by a process which he, at present, declines to make public. But the specimens proved that good sugar can be made from the sorghum, or some of its varieties. Mr. Weller, it is believed, prefers the imphee to any other. He is now engaged in its manufacture upon a more extensive scale. It is to be hoped that before long the farmers of the North and West will, in a measure at least, be independent of the sugar plantations of the South, and that subsequent experiments may fully demonstrate that syrup and sugar can be made here rivaling in quality and price that made from the sugar cane.

Our Fair, as usual, presented many fine specimens of horses, cattle and sheep. These great interests were well represented, but the display of manufactured and of agricultural products was much less than it should have been. True, there were many such articles on the ground, but the proportion they bore to the live stock was small. It is much to be regretted that these classes, for whose more especial benefit these annual gatherings are held, should take so little interest in sustaining them, and in exhibiting the products of their industry and skill. But if they are satisfied, the officers of the Society and any others who may take a deeper interest in the progressive improvement of the masses of farmers and mechanics, must be content.

The atttendance at the Fair was good. Number of members, about 300.

NOBLE COUNTY.

The Noble County Agricultural Society held their thirteenth annual Fair at the Society's Fair Grounds, at Sarahsville, on the 12th and 13th days of October, 1865.

Our Society is improving in interest gradually, and I think will eventually be a lasting benefit to the people of the county. Our show of horses was very good, especially young horses. The improvement of the stock in the county is very perceptible, as all kinds of stock is improving. The fruit was almost an entire failure. This year there were but two or three entries of apples; no peaches; a few specimens of grapes. Potatoes, both Irish and sweet, were very fine. Very good pumpkins and squashes, &c.

The principal crops of this county are wheat, corn, oats, potatoes, tobacco, hay and sorghum (the aggregate not known). The wheat was poor; not much over half a crop. Corn and oats were very good. Hay was an extra crop, the largest ever known. Potatoes were better than for several years. The crop of sorgum about as usual as to quantity, but greatly improved as to quality of syrup. The crop is sufficient to supply the county. The tobacco crop is about an average crop.

PICKAWAY COUNTY.

The last Fair was, pecuniarily, a great success.

The sheep, horse and cattle departments were well represented, much larger, in fact, than for several preceding years. The departments of fruit, flowers, farm products and the mechanic arts were not very well represented, partly on account of the bad season, and partly because the premiums on a portion of the articles were not deemed large enough by our mechanics to pay for the trouble of moving the articles. The ladies' departments were well represented.

There is a movement on foot to raise, by subscription, a sufficient amount of money to enable the Society to offer large premiums, and thus bring out the best stock the county affords, and infuse some spirit into contest for premiums. That the result would be beneficial is not doubted.

I can gain no reliable information in regard to crops, yield per acre, &c. The grain is not all threshed out yet, and no returns have been made to the Auditor's office

PORTAGE COUNTY.

The Twentieth Annual Fair of the Portage County Agricultural Society was held on the 20th, 21st and 22d days of September. The weather was fine and the attendance large; but the most pleasant feature of all was the perfect good feeling and lively interest manifested in the encouragement of agriculture. Number of members, 133.

The exhibition of stock was good. That of cattle, sheep and poultry was excellent. The floral department was not as nice as we could have wished, owing to the fact that our hall was entirely too small to accommodate and make a fair display of the numerous articles furnished to that department. Our receipts were ample to pay the premiums and expenses of the Fair, and would have left us with a nice surplus had we not been compelled to rebuild the fence around our grounds this season. We can, therefore, report our Society in a flourishing condition, and our fair a complete success. The usefulness of our Society is established beyond controversy, yet, with proper management, it may and should be widely extended.

There has been a great improvement in horses, cattle and sheep, in this county, within a few years past.

The principal productions of the county are wheat, oats, corn, potatoes, hay, butter and cheese. Wool growing has taken a lively turn within the last few years, and most of the clip of 1865 is yet held by the wool growers. What has been sold has averaged about $65. Corn, oats and hay was far above an average with us, and we are therefore pleased to say that we have plenty and to spare; yet I am unable to give the aggregate amount, or yield per acre, of either of these products.

PREBLE COUNTY.

Our Annual Fair, held on the 26th, 27th, 28th and 29th days of September last, may be said to have been entirely successful. Although the exhibition of articles in a few classes was somewhat meager, yet the general result was highly gratifying.

Early in the past season the managers determined upon holding a fair, and they, as well as many other friends of progress in agriculture, worked zealously to render it a success, and the result fully met their expectations. We sold 1,008 membership tickets.

Strenuous efforts are being made to procure larger and more suitable "Fair-Grounds," and it is confidently believed that it will be accomplished, and the Society's power of usefulness increased.

The early spring of 1865 was very favorable to farm operations, and large quantities of land was prepared for spring crops in superior condition. But about the time that corn-planting should have commenced, a "wet time" or rainy season, set in, unprecedented in this county. From near the last of April, the ground was almost constantly too wet for tillage or planting until June. This made the planting unusually late, and farmers were much discouraged at the prospect of raising a crop. The months of June and July, however, being very favorable, crops of every kind grew with unexampled rapidity. After the small grain was generally cut, and before any considerable quantity of it was secured, rains again set in, and continued so long as to damage the wheat and oats crops seriously.

The late summer and fall proved so exceedingly favorable, however, that the corn crop was never better in this county. Frost did not occur until the corn was fully matured, notwithstanding the late planting, and both in quality and quantity the crop is fully equal to any former one. It would be perhaps safe to estimate the crop at from 1½ to 2 million bushels, or from 45 to 50 bushels per acre, in this county.

The wheat crop, notwithstanding the damage by wet while in shock, was about an average crop, or 500,000 bushels.

The oats crop is universally admitted to be the largest ever raised in the county, and will reach fully 300,000 bushels.

Barley, rye and buckwheat are so little cultivated in this county, that no reliable estimate of the quantity of either can be attempted.

Sorgho was more extensively cultivated last season than usual, and the crop was unusually good. Reliable estimates collected by a convention of growers and manufacturers, held in Eaton about the beginning of December, fixes the number of gallons of syrup manufactured in the county, at about 170,000; which is nearly three times as much as the production of any former year.

The crop of hay was largely in excess of any former year, and probably exceeded 10,000 tons.

Potatoes, never a large crop in this county, or claiming very much the attention of farmers, produced very well generally, but in many localities almost the entire crop was lost by "rot."

Tobacco was not so much cultivated as in some previous years, but the product was of a fair average quality, and may reach 400,000 lbs.

Flax-seed has, for many years, constituted one of the staple productions of Preble county agriculture; and our farmers were among the first in the State to engage in the cultivation of flax purposely for the seed. At one time Preble county produced as much flax-seed for market as all the balance of the State. For several years past a factory has been in operation in our county seat, which separates the fibre from the flax straw, and prepares it for use in many important branches of the arts. The straw has been bought from farmers at from $6 to $15 per ton. The product of last season, on account of injury from various causes, falls considerably below the average, both in quantity and quality.

Whether the operations of the Agricultural Society be deemed the *cause*, or the *evidence* or *manifestation*, of an improved state of farming, that improved condition is none the less striking. Better breeds of stock, improved implements, more attention to field operations, more careful selection of seeds, better culture, and *better products*, selling at *higher prices*, are results that are of no doubtful import.

PUTNAM COUNTY.

Pursuant to previous notice the Putnam County Agricultural Society met and elected officers for the ensuing year.

In regard to the prospects of the Society I would say that, financially, the Society is prosperous; it is out of debt. No improvements were made during the past year on the grounds of the Society. Our fair was held on the 27th, 28th and 29th of September. There was a pretty good display of horses, cattle and hogs. There was a fine display of fine-wooled sheep. Our farmers are taking hold of the sheep business, and for a low, flat county, this is destined to be a paying business here. We have a good soil, but it requires draining. A greater amount of ditching has been done in this county during the past year than any year previous.

Owing to the wet season grain of all kinds was much injured. The hay crop was good; corn crop was never better.

We had a good display of agricultural implements, and more machinery is being used by the farmers than formerly. Yet I have to say that there is not that interest taken generally in our county fairs that should be, but as we have passed through the great struggle for the life of our common country, we may safely expect a greater interest to be taken in the subject in the future. Our officers were not as efficient during the past year as they should have been.

RICHLAND COUNTY.

The Sixteenth Annual Fair of the Richland County Agricultural Society was held at their Fair Grounds near Mansfield, October 3d, 4th and 5th. Owing to the unfavorable state of the first and second days, the number of entries were not as large as they otherwise would have been had the weather been pleasant. However, the number of entries were satisfactory to the Board, there being 536; 156 membership tickets were sold. Considering the small amount of ten cents charged for admittance to the grounds, the Board consider this Fair a success over Fairs of late years, and feel encouraged over the prospect of steady progress.

The Board has no report to make on field crops, and other improvements in agriculture, as no entries were made for the same this year. Yet there is certainly an increasing interest manifested in our county in the proper management of farms and in the cultivation of field crops.

The principal crops of this county are wheat, corn, rye, barley, oats, hay and potatoes. Of wheat a medium crop—somewhat injured after harvest by excessive rains—average yield about 20 bushels per ace. Corn, good crop, average yield about 40 bushels per acre. Rye and barley medium crop, 20 to 22 bushels per acre. Oats, fair crop, 28 to 30 bushels per acre. Hay, average crop, very materially injured by rains, 1¼ to 2 tons per acre. Potatoes below an average crop—excessive rains caused them to rot. Steady progress in fruits of every description is evident from the fine samples on exhibition. The growth and culture of sorgho is receiving attention from our farmers, and is steadily on the increase in our county.

SANDUSKY COUNTY.

The Fourteenth Annual Fair of the Sandusky County Agricultural Society was held on the Society's grounds in Fremont, on the 6th, 7th and 8th days of September, 1865. The attendance was larger than for several years. Number of members, 394; number of entries in the different classes, 467. The exhibition of cattle was not very large, but good, there being some splendid specimens of the Shorthorn and Devon breed, also some very fine natives and grades.

Of horses, there was a goodly number of entries, and we can see there is an improvement in that department from year to year. The show of sheep was better than ever before, both in regard to number and quality. The show of hogs was not large but very good. There was also a very good display of poultry, both in number and quality. There were but few articles exhibited in the Mechanics' Hall. Farm Product Hall was well filled with fine specimens of grain, pumpkins, potatoes, &c., &c. Floral Hall was, as usual, very attractive, giving positive evidence that the ladies have not lost their interest in the Fairs.

The crops in our county, with the exception of corn, have suffered from the wet weather of the past season.

SENECA COUNTY.

The report for 1864 assigned the reason why no fair was held by our Society in that year.

On the 26th, 27th and 28th days of September our fair was held for this year. We were favored with excellent weather and an immense crowd of exhibiters and visitors. Upon the whole, we regard the fair a success. The exhibition of cattle exceeded any previous fairs in numbers and quality. There was a fine show of grains and garden products. The exhibition of farming implements was not as good as in former years. There seems to be a greater interest manifested in our fairs than in former years, and it promises well to become one of *the* institutions.

Corn, wheat, barley, oats, clover seed and timothy seed are the principal crops of this county. The yield of wheat varied in different localities. Something affected the wheat about two weeks before harvest, and destroyed the fair prospect we then had for a good crop. This "something" is the subject of much varied speculation, and it is, as yet, impossible to give a rational and satisfactory cause for it; but I will briefly state what appeared to many as a phenomenon. About the middle of June our wheat looked better than it had for many years. Stocks and heads looked fresh and lusty. Now was the time when it was expected that the heads would fill and hang down, but there they stood, upright and two-thirds empty, and so remained. Our wheat this year will not average a half crop. Our corn crop is very large, and will average forty-five bushels per acre.

SHELBY COUNTY.

Our Sixth Annual fair was held on the grounds of the Society on the 3d, 4th and 5th days of October, 1865. The weather was favorable and attendance good. Number of entries, 600.

The show of stock was good. Of farm products, not as full as it should have been. Fruit, good for the season. Butter and canned fruits excelled former exhibitions. Wheat, badly injured by rust and weevil; averaged forty bushels. Oats, good; averaged forty bushels. Corn, very good; averaged thirty bushels. Rye, but little raised. Barley averaged twenty-five bushels. Hay, heavy but damaged in curing. Buckwheat but little raised. Potatoes grew fine but rotted in the ground. Sorghum, double of former years.

STARK COUNTY.

No competitors on field crops for this season. Several entries made, but failing to comply with the requirements of the regulations in giving detailed statement of cultivation, &c., premiums were not awarded.

There is an undoubted improvement in the science of agriculture within the county, yet many farmers in the county are turning their attention to raising stock, it apparently, at least, being much more profitable.

The Society was never in a more prosperous condition than at present, it having become one of the fixed institutions of the county, and which the people could not think of doing without.

The list of members numbers 425—an increase of 100 over last year—and, as the receipts will show, proved a complete success this season, far beyond the hopes of the most sanguine. The Fair lasted four days, with an unabated interest to the last. The entries were good as to numbers and quality of articles exhibited. The finest show of sheep ever had in the county, and the show of horses and cattle was much better than usual, and the prospects for the next season's show are still better.

The Society is entirely out of debt, with some little money in the treasury. The grounds contain about eighteen acres, and are not surpassed by any fair grounds in the State, and, with the permanent improvements, are to-day worth ten thousand dollars—could not be replaced for less. The Society has decided to build a Floral Hall for the exhibition of 1866 that will surpass anything of the kind in the State. The exhibitions are open to the world, except on field crops.

To give more perfect satisfaction they resolved that hereafter awards are to be made under oath.

I presume you have received, through the assessor, all the necessary statistics. Our county is well adapted to the raising of all kinds of grain, and there is a very great improvement in fruit and the grape, but late frosts and hard freezing during the winter have been very destructive for the last few years.

SUMMIT COUNTY.

As prescribed by law, the Summit County Agricultural Society makes the following report for the year 1865:

Our Fair was held October 4th, 5th and 6th. Our statements of crops are opened at an annual meeting which takes place on the third Wednesday in January, and consequently cannot be inserted here at this date. Our crops rated about as follows:

Wheat one-half yield. Corn above average—good. Hay and oats good. But little buckwheat or rye sown. Potatoes fair; some rotted in the earlier part of the season.

Our farmers, as a general thing, have been successful the past season. With fair crops and good prices, and the return of peace, we have nothing to complain of, and very much to be thankful for, as a free and prosperous people.

TRUMBULL COUNTY.

The Trumbull County Agricultural Society held its Twentieth Annual Fair on the 20th, 21st and 22d days of September, 1865.

TUSCARAWAS COUNTY.

The Sixteenth Annual Fair of the Society was held on their grounds, near Canal Dover, on the 27th, 28th and 29th of September.

Some of the departments were well filled, and others not so well. The greatest improvement is in the sheep. We found them of the best quality, some from the flocks of Hammond, Gleason, Stow, Story and others. One stock ram attracted our attention, bought from Gleason, of Vermont, by Deardorf, Herrick & Walter, at a cost of $3,200, of the pure Infantado family.* His fleece last spring was 23¼ pounds. He exhibits all the qualities of a first-class stock ram.

Floral Hall, as usual, was decorated with taste, and attracted attention. The weather was fine, and the people turned out. Financially a great success.

The whole number of entries was 548. Memberships, 561. The Society owns eleven acres of land, and is out of debt.

UNION COUNTY.

The only competition on crops was a single entry of corn. The yield was ninety-six bushels and three pounds per acre. The usual process of cultivation, on black, sandy soil; new ground, without manure.

Paying members of the Society for the year, 100. The Society is in a prosperous condition. The past annual Fair was more than usually well attended, showing that the farmers are becoming more interested than at any time since the commencement of the rebellion.

The corn crop for the past season better than usual; average per acre, 50 bushels. Hay, per acre, two tons; oats, 30 bushels; wheat, 10 bushels. The wheat crop was very promising, and in many cases it was not known to be damaged by the fly and rust until the harvesters commenced work.

VAN WERT COUNTY.

The Ninth Annual Fair of the Van Wert Agricultural Society was held on the Society's grounds, on the 28th and 29th of September. It was well attended, and the number and variety of articles exhibited was greater than ever before. Considering the youthfulness of our county, our late Fair may be properly termed a successful one. The exhibition in horses, cattle sheep, hogs, mules, &c., was not large, yet creditable, and exhibiting good specimens in each class. The exhibition of domestic manufactures was good. The vegetables were fine, and the quantity large. In farm implements and machines the show was good. In fruits, the specimens were many and superior in quality.

The principal agricultural products are wheat, corn, rye, oats, barley, buckwheat, grass, clover seed, timothy seed, potatoes, &c. The wheat crop was a failure the past season, there being hundreds of acres not harvested—being badly winter-killed in the first place, and what remained was destroyed by weevil and rust. The loss is seriously felt, having to import for home use. Flax seed not more than half a crop. Other crops good. Corn very good.

Market value of crops: Wheat, $1.75; corn, 40c.; rye, 50c.; oats, 30c.; clover seed, $6; timothy seed, $2.50; flax seed, $2.25; potatoes, 75c.; barley, 75c. Our market towns are Van Wert and Delphos, being on the P. Ft. W. & C. R. R.

Average yield per acre: Wheat, 5 bushels; rye, 20 bushels; buckwheat, 25 bushels; barley, 25 bushels; corn, 45 bushels; flax seed, 5 bushels; grass, 2 tons; oats, 25 bushels.

The Society numbers one hundred and forty-five members; has six acres af land, well fenced, with hall, well, and other fixtures in good repair.

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* Should like to have a copy of the pedigree of this "pure Infantado."—KLIPPART.

WAYNE COUNTY.

The Wayne County Agricultural Society held their Sixteenth Annual Fair on the Fair grounds, on the 4th, 5th and 6th of October, 1865. The citizens of Wayne county again displayed a willing determination to make good the hopes of the managers of their Society, that our County Fair shall be a success; which, we are happy to inform your honorable body, have been realized.

Six hundred and eighty dollars were paid for the erection of a permanent and substantial frame building for the protection of the mechanical department, which is a very useful and valuable improvement, and we trust it will be fully appreciated by our citizens engaged in manufacturing in coming years.

The membership has materially increased over last year, the present list numbering four hundred and twelve.

The entries were perhaps larger than any previous year, amounting to over one thousand. The articles and animals on exhibition in many departments were very good, showing a determination on the part of exhibiters to excel the former Fairs, if possible; and this year, in some departments, they succeeded most admirably. For instance: in the line of horses, the number entered was increased to over 150, with a fine show in this branch, composed of good. large, well-formed, substantial and useful animals. We do not pretend to any very high breeding in blood, but we do make some pretensions in breeding the useful and desirable animal, which always finds a ready and remunerative demand.

The cattle department was not very fully represented, but what were at hand were very good specimens of Durhams, Devons, and natives.

Of the exhibition of sheep I speak very encouragingly. The number on exhibition was very large, approximating two hundred head, and many of them of the finest grades, being the finest selections from Vermont flocks and their offspring, produced in Ohio. Our wool growers are determined to bring the quality of wool produced in Wayne county equal, at least, if not superior, to the best wool growing counties in the State. There were several bucks on exhibition, which had cost the owners of them over $1,000 a head.

Other departments were well represented, of which I cannot particularize; but will speak of crops briefly. Wheat was not a medium crop—not averaging over fifteen bushels per acre, and that not of the finest quality; injured by rust and weevil. The oats crop was above an average, reaching perhaps fifty bushels per acre. The corn crop was very good for this section of the State, averaging about fifty bushels of shelled corn per acre. The grass crop was very good; pastures very excellent; but the hay crop was not good in quality, owing to the frequent rains that prevailed during the hay making season. The potato crop was not a good one, the season being very wet; they grew to tops too much, and the potatoes rotted badly before and after being raised.

Our fruit crop was a failure. The severe frosts on the 12th and 13th of May destroyed the fruit when in and after the blossom. Consequently our fruit show was very small. Our grape exhibition was likewise a failure—destroyed by the May frosts. I now speak of my own vines. The spring growth of some branches would reach a foot or more in length. All the new wood and every leaf was killed. The new wood that was afterward sent out was so late that the fruit could not mature to be considered valuable.

Our vegetable department was very fine; the specimens numerous and large.

The Ladies' Department, as usual, was well represented with the useful and beautiful.

The Agricultural Report for 1864 has been sent up to this county and distributed by the County Auditor. Not one-half of the Board of Managers received a copy, and perhaps not one copy out of ten has fallen into the hands of members of the Society. The present system of distributing the Reports needs amending, in such a manner that these Reports could be controlled and distributed, by the officers of the Societies, amongst the members of the several societies, and thereby will not be diverted from the legitimate object of their publication.

WILLIAMS COUNTY.

The products of agriculture in this county in the past year were large in quantity, good in quality and highly remunerative. Wheat, although damaged by the rainy harvest, was a fair average. Corn and oats extremely good in yield and quality. Hay, on account of the wet season, was decreased in quality, but increased in abundance. Flax and rye but little sown. Apples gave a full yield and were perfect in growth. Grapes, good; cherries, few; peaches, none. Small fruits, good; vegetables in extreme abundance. Potatoes about an average, injured by rot. The exhibition of horses at the fair was good, except fast horses, on account of the condition of the track. Of cattle, fair; of sheep, excellent; of hogs, poor; of fruit, splendid; of vegetables, large; of domestic manufactures and fine arts, fine and showy.

There was no competition in field crops. Sorghum is receiving increased attention, and is now a permanent crop. Some of our farmers are sparing neither time nor money in order to bring about an improvement in stock, especially in fine sheep. Number of members, 272; number of entries, 555. The weather on the days of the fair (26th, 27th and 28th of September) was most propitious, which made the fair a success in finance (as seen by the Treasurer's report), in interest and utility; so much so that the Society is out of debt, with a fair balance in the treasury.

The interest manifested was very general, and a living, working enthusiasm was shown on the part of the leading members and officers, such as was necessary to be created in order to the success of the Society in the purchase of new ground and erection of new buildings. which is the work of the Society for the year 1866. Such an enlarged appreciation of its utility, alike to farmers, mechanics, manufacturers, merchants and the professional classes, has been formed, and we hope that all will co-operate to sustain the Annual Fair, where specimens of the various productions of head and hand may be exhibited. We are glad to see that the farmer commands the respect that is his due, as he is employed in a profession where intelligence and that of a high grade can be brought to act. And we are happy to see that many County Fairs in the State have exchanged their Olympic contest of muscle, such as foot racing, wrestling and equestrianism, for something more worthy—a competition of intellect, in original orations, essays, poems, &c., from the boys and girls of the farmers and mechanics.

This literary contest for the youth of the country was entered into manfully and carried out with success during the evenings of our County Fair.

WOOD COUNTY.

The Thirteenth Annual Fair of the Wood County Agricultural Society was held at Bowling Green, Oct. 3d and 4th.

The entries were not large in number, being a little over 300, but were generally articles and specimens of merit. The show of horses was large for our county, and good; cattle pretty fair, and sheep unusually large and nice.

In the vegetable hall, as usual, there was a fine display. The articles in the domestic department added greatly to the attractiveness of the exhibition.

The fruit department was well filled with apples and pears, and in quantity, if not in quality, exceeded the exhibits at the State Fair at Columbus. The number in attendance, on the last day of the Fair, was the largest ever assembled at any previous agricultural meeting in the county, and had it not been for a misunderstanding, by which the gate keepers admitted all women and children free, the gate receipts would have been the largest also.

Our Society is small compared with many others in the State. The membership this year is somewhat larger than usual, being now 210.

We are free from debt and have a small fund on hand. Our future prospects are tolerably fair for usefulness.

Corn and hay are the principal crops of our county. Probably about 20,000 acres were planted in corn in 1865, with an average yield of about forty bushels per acre. About 15,000 acres of grass were cut last season, yielding an average of one and one-half tons per acre.

While corn and hay were unusually good, wheat was a short crop, and quite inferior in quality, owing to the ravages of the weevil.

Heretofore the raising of sheep has received but little attention in this county, but during the last few years more attention has been given to them, with a fair prospect of their doing well.

Apples and grapes grow and yield admirably well here, and we flatter ourselves that in the not far distant future we shall generally be regarded as one of the best fruit sections of the State.

WYANDOT COUNTY.

The Twelfth Annual Fair of Wyandot county was held at the Society's grounds at Upper Sandusky on the 27th, 28th and 29th days of September, 1865. The weather was very fine and the roads in excellent condition, and from the interest manifested by the citizens of the county and the members of the Society, the Board of Managers contemplated having a very beneficial and profitable exhibition. All felt encouraged from the interest taken that there would be a good time generally, and that it would be a farmers' festival indeed.

In full blooded Spanish sheep we challenge any county in the State to compete with us.

The improvements our Society have made the past year have drawn heavily upon our resources. We have added four acres more, making twelve acres, all inclosed with a first class board fence, enlarged our driving park to half a mile track, and erected a first class Floral Hall. Our grounds are beautifully located and well shaded with forest trees.

The principal products for exports are stock, wool, wheat, corn, clover and timothy seed. The following are the crops raised and about their average yield per acre for this year: What, 12 bushels; corn, 45; rye, 18; oats, 40; buckwheat, 12; barley, 20; potatoes, 175; clover seed, 4; timothy seed, 5; hay, 1½ tons. Wheat, barley and oats much damaged by wet weather. There was no competition for field crops. We number 200 members.

LEBANON, July 16, 1866.

Mr. John H. Klippart, Secretary Ohio State Board Agriculture, Columbus, Ohio:

DEAR SIR—Our Horse Fair held the 7th and 8th of June, 1866, was decidedly the best exhibition of horses ever given in our county. There were 125 entries, and near 150 of the finest horses in the State on exhibition. The attendance of spectators was not large owing to the busy season with our farmers, and the trial of Coovert being in progress, yet our receipts will about pay the premium list. (which was near seven hundred dollars) and the other expenses of the fair.

Our fair, taking every thing into consideration, was a decided success.

The driving park was very attractive, at least to a great portion of the people present.

Many of the horses shown at this fair would very favorably compare with a great many of the horses exhibited at the State fairs; in fact no county in the State can excel old Warren in the way of fine horses. There were eight entries of beautiful match horses, which was hard to decide on the best. We congratulate ourselves on our Spring Fair, since there has been a good many other failures in other counties.

Respectfully
Your obedient servant,
GEO. W. CAREY,
Secretary W. C. A. S.

List of Premiums awarded at the Horse Exhibition of the Warren County Agricultural Society, held at Lebanon, June 7, and 8, 1866.

CLASS I—HORSES FOR ALL PURPOSES.—Best Stallion over 4 years, Jas. J. Benham, 1st premium, $15; A. S. Monfort, 2d premium, $10. Best Stallion over 3 years, Thomas S. Jack, 1st premium, $10. Best Stallion over 2 years, John M. Dunham, 1st premium, $5; J. W. Dunham, 2d premium, $3. Best Stallion over 1 year, A. W. Graham, 1st premium, $3; J. W. Wolf, 2d premium, $2. Best Gelding over 4 years, A. Oskamp, 1st premium, $10; James Wykoff, 2d premium, $5. Best Gelding over 3 years old, Ben. Sweet, 1st premium, $6; Daniel Bellar, 2d premium, $3. Best Gelding over 2 years, John F. Hatfield, 1st premium, $5; Granville Tresslar, 2d premium, $2. Best Mare over 4 years, Wm. V. Bone, 1st premium, $10; J. Booram, 2d premium, $5. Best Mare over 3 years, no entry. Best Mare over 2 years, J. W. Mounts, 1st premium, $3. Best Mare over 1 year, Daniel Bellar, 1st premium, $3. Best Sucking Horse Colt, Ellison Harkrider, 1st premium, $3. Best Sucking Mare Colt, Daniel Bellar, 1st premium, $3; G. Lefferson, 2d premium, $2. Best Sucking Mule Colt, Jos. Jameson, 1st premium, $3. Best Draught Horse or Mare, Wm. Snyder, 1st premium, $5; J. M. Hayner, 2d premium, $3. Best Pair Draught Horses or Mares, J M. Hayner, 1st premium, $7; Israel Wright, 2d premium, $5. Best Draught Stallion, A. J. Decker, 1st premium, $5. Best Family Horse or Mare, Wm. Smith, 1st premium, $10; John S. Anderson, 2d premium, $5.

CLASS II—SADDLE HORSES.—Best Saddle Mare or Gelding, P. Fitzgerald, 1st premium, $10; John S. Anderson, 2d premium, $5.

MATCHED HORSES.—Best and Finest pair Matched Horses, Wm. B. Francis, 1st premium, $15; Bone & Hatfield, 2d premium, $10; H. P. Lane, 3d premium, $5. Best and Finest pair Matched Mares, no entry.

CLASS III—FINE HORSES.—Best and Finest Stallion, any age or breed, J. Eberhart, 1st premium, $15; A. S. Monfort, 2d premium, $10. Best and Finest Gelding, any age or breed, Thos. Parker, 1st premium, $10; Bone & Hatfield, 2d premium, $5. Best and Finest Mare, any age or breed, Wm. V. Bone, 1st premium, $10; Isaac Bunnell, 2d premium, $5. Best pair Matched Horses or Mares for light harness, J. C. Chamberlain, 1st premium, $10; D. Barkalow, 2d premium, $5. Best Single Horse or Mare for light harness, Court. Dodds, 1st premium, $10; W. A. Hardy, 2d premium, $5.

CLASS IV—UNTRAINED HORSES.—Fastest Trotting Mare or Gelding, untrained, A. Oskamp, 1st premium, $15, time, 2:55. W. A. Hardy, 2d premium, $10, time, 3:06. Thos. Ballard, time, 3:13. J. M. Thompson, time, 3:31.

CLASS V.—Best and Fastest Racking Horse or Mare, J. W. Jones, 1st premium, $15, time, 2:55: J. W. Edwards, 2d premium, $10, time, 3:18; T. W. Hays, time, 3:54. Best and Fastest Pacing Horse or Mare, Wm. Dodsworth, 1st premium. $25, time, 2:46; A. Oskamp, 2d premium, $15, time. 2:51¼.

CLASS VI—ROADSTERS.—Fastest Trotting span, Dr. Bonaparte, 1st premium, $50, time, 2:50; S. Braden, no premium, time, 3:47.

NOTE.—The second premium on Fastest Trotting span was withheld, and the entry fee to be returned. By order of the Board.

Fastest Trotting Stallion, Jas. J. Benham, 1st premium, $50, time, 2:50; A. Oskamp, 2d premium, $25,' time, 2:57; F. Monday, time, 2:57½. Fastest Trotting Mare or Gelding, Dr. Bonaparte, 1st premium, $50, time, 2:37¼; A. Oskamp, time, 2:41½; Wm. Dodsworth, time, 2:41 2-5; C. Dodds, time, 2:52; J. Dolan, time, 3:02½.

NOTE.—The second premium on Fastest Trotting Mare or Gelding, was withheld for the following reasons, viz: Wm. Dodsworth, time, 2:41 2 5: A. Oskamp, time, 2:41½. The committee decided that the trot for the 2d premium should be gone over after dinner; during the time Wm. Dodsworth left the ground before the trot was decided; therefore the premium was forfeited. By order of the Board.

CLASS VII.—Best Stallion with 5 or more colts, Thomas Parker, 1st premium, $15. Best Mare with 3 or more colts, B. W. Crist, 1st premium. $7.

CLASS VIII—SWEEPSTAKES.—Best Stallion, any age, A. S. Monfort, 1st premium, $15. Best Gelding, any age, Hatfield & Bone, 1st premium, $10. Best Mare, any age, W. V. Bone, 1st premium, $7.

Tenth Annual Report of the Union Agricultural Society of Wellington, Lorain county, Ohio, for the year, A. D., 1865.

The question of sustaining an Independent organization for the promotion of Agriculture and the Arts is no longer an experiment, but a fixed fact well demonstrated by the following figures:

Our Society was organized on the 19th day of May, A. D., 1855, without a dollar in her treasury. Fairs have been held every year since, except 1863, (which was omitted in consequence of the war) and with increasing interest, and success. The Society have leased commodious grounds, improved, fenced and erected suitable buildings, stalls, sheds, &c. It now has a membership of nearly *seven hundred*, with a representation and patronage extending into five or six counties in this vicinity. The following gentlemen have been elected to fill the various offices for the coming year:

Philip L. Goss, President, Brighton, O.; E. W. Houghton, V. President, Wellington, O.; J. B. Lang, Secretary and Treasurer, Wellington, O. Also one Director for each township represented in our organization.

The entries of animals at the fair, this year, were		351
" " miscellaneous articles this year were		388
Total		739
Amount of cash on hand from last year		$718 47
Total receipts for this year		1,555 10
Total		2,273 57
Amount paid for premiums	$550 00	
Other expenses for the year	330 00	880 00
Total cash unexpended		$1,393 57

J. B. LANG, *Secretary.*

UNION AGRICULTURAL SOCIETY.

This Society is, properly, a District Society. It is composed of the counties of Greene, Warren, Clinton, Fayette, Madison and Clarke. The members of the Society, of whom there are about two thousand, are residents of all those counties.

The last Annual Fair was a very successful one. All the different classes of stock were fully represented. Saddle and general purpose horses were superior. Eighteen four year old saddle geldings were shown in the ring at one time, all under saddle and all superior animals. Twenty-six four year old geldings, general purpose, in the ring at once, making a most splendid show. Three herds of Shorthorns, and eight aged jacks, with numerous jennies and mules. Sheep was also a large show. The mechanics were out in strong force, and the ladies, as is their custom at our Fairs, led the van in number of entries and articles on exhibition, and also a decided improvement in the exhibition.

The Treasurer's report shows that there was received the past year..	$3,459 00
Expenditures	2,598 00
Balance for 1865	861 00
Balance from 1864	809 00
Leaving now in the Treasury at date	$1,670 00

The Board contemplates enlarging their grounds and making other improvements.

The different kinds of crops were good. Potatoes took the rot in some localities. Stock went into winter feeding in good condition.

The officers of the Society are a President, two Vice Presidents, Corresponding and Recording Secretaries, and Treasurer, with a Board of nine managers.

AGRICULTURAL CONDITION OF OHIO.

After four years of the most unexampled rebellion to be found in the records of civilized man, it may be well to take a survey of the condition in which the war found and left our industrial resources; more especially that of agriculture—for in all wars heretofore the agricultural interest suffered more severely than any other productive or industrial pursuit.

During the war just closed Ohio promptly furnished all the men and horses required of her to conduct the war to a successful issue. In a State like that of Ohio, where all are engaged in some active pursuit, and the greater portion of these pursuits are productive industry, the withdrawal of any considerable number of the adult population must necessarily affect the industrial relations and products. However much the mechanical interests were effected, certain it is that the agricultural interests were not effected to that extent which, from the number of men sent into the field, would at first sight appear almost inevitable. The area cultivated during the war does not vary materially from the ordinary annual average; but, whilst the acreage presents such a favorable account, the attention to live stock has very manifestly been sadly neglected. The assessors' returns show a diminution of horses in numbers of less than 10 per cent. between 1861 and 1865; but in cattle, the most important staple of our live stock, the diminution has almost reached 35 per cent., or an annual diminution of about 9 per cent., or about 175,000 head of cattle annually. If the war had not taken place, there is little doubt that both horses and cattle would have increased just as much as they decreased. Sheep, on the contrary, nearly doubled in numbers during the war; but this increase was caused by the interruption of cotton growing, and the unprecedented price of it, as well as the great demand for the middle and coarser grades of wool for army clothing.

The census of 1860 show that in Ohio we had—

Males.	Whites.	Colored.	
Between 15 and 20 years of age	127,972	1,997	
" 20 and 30 "	200,493	3,208	
" 30 and 40 "	144,587	2,209	
" 40 and 50 "	100,224	1,500	
	573,276	9,014	
Grand total			582,290

The census report further shows that 638,130 of the population were engaged in recognized and specific avocations; but many females are included in this list, such as tailoresses, seamstresses, milliners, mantua makers, etc.; but we find that there were—

Farmers	223,485
Farm laborers	76,484
	299,969

Or about one-half of the white male population between 15 and 50 years of age, or what is about the same thing, one-half of the white male population between 20 and 70 years of age were engaged in farming. The white male population between 50 and 70 years of age is somewhat less than that between 15 and 20.

According to the Adjutant General's report, Ohio furnished 372,353 men for and during the war, or an aggregate of more than half of the male population, both white and colored, between the ages of 15 and 70, as enumerated in 1860. In these heavy drafts upon the male population for military purposes the agricultural portion were by no means exempt; and it would not be surprising to learn that the area cultivated was considerably below the normal annual average.

In considering the resources of the State, it is certainly not improper to include the natural resources with the industrial ones. As there has never been a complete geological survey of the State, our mineral resources are, as a matter of course, neither developed nor fully known; but enough is known to enable us to state with certainty that twenty-eight counties, commencing with Scioto county, thence running northward in an irregular line to Ashland county, thence northeast to Portage county, thence east to the Pennsylvania State line, thence south to the Ohio river, and along said river to the "place of beginning," constitute the Ohio coal field; that this coal field is bounded on the west and north by a belt of conglomerate, Portage and Chemung sand-stone, and black or Hamilton shales, ranging from thirty to sixty miles in width; whilst the entire western half of the State is a lime-stone formation. In the coal field are found not only coal, but lime, iron ore, salt and petroleum. Money enough has been expended in sinking wells for petroleum in non-productive regions sufficient to have paid for a very detailed geological survey of the entire State. The natural resources of the south-eastern portion of the State are perhaps less known than that of any other equally large portion of the State, and for this reason I have deemed it appropriate to insert the report of Prof. E. B. Andrews, made for the Cincinnati and Marietta Railroad Company.

REPORT.

The region of Ohio traversed by the Marietta and Cincinnati Railroad belongs to three distinct geological formations, viz.: the Silurian, Devonian and Carboniferous.

The *Silurian* rocks are found on the west end of the road from Cincinnati to the vicinity of Leesburg, in Highland county. The silurian limestones, in their disintegration, constitute the richest and most productive soils, and no region in the land possesses greater agricultural resources.

The *Devonian* rocks extend eastward to the vicinity of Raysville, in Vinton county. By the Ohio Geological Reports these rocks are divided into three groups, viz: the Cliff Limestone, the Black Slates and the Waverly Sandstones. In the New York Geological Reports these rocks, as investigated in that State, are differently subdivided and named. Until our Ohio rocks are more carefully studied it will be difficult to apply, with entire accuracy, the names of the supposed New York equivalents. The Ohio Black Slates are doubtless the equivalent of the Hamilton group of New York, and the Waverly Sandstones are the Chemung and Portage groups of New York. A careful study of the fossils will alone determine the minuter points of correspondence.

The *Cliff Limestone*, when disintegrated and decomposed, forms an excellent soil, and the region bordering your road in which these limestones prevail, must afford much traffic in the transportation of its agricultural products. This limestone is now largely burned into quicklime. The quality is represented as excellent, and the demand increasing. The supply is inexhaustible.

The *Black Slates* which appear low in the hills near Chillicothe, and extend westward ten or twelve miles, are probably two hundred and fifty feet thick The sandstones which cap all the hills near Chillicothe belong to the Waverly group. The Black Slate being bituminous, may prove to be of much economic value as the source of petroleum, which, rising, accumulates in the fissures in the overlaying sandstones and shales. This point will be discussed under the topic of petroleum. The Black Slate has no value as coal, and all efforts to open coal mines in it will prove futile. The slate often burns with considerable bituminous flame, but when the bitumen is burned out there is no remaining coke to give heat. Nothing remains but lumps of slate in their original form. The time may come when oil may be distilled from it, but there are so many cannel coals richer in oil, that that time is probably distant.

The *Waverly Sandstones* extend from the vicinity of Chillicothe to the neighborhood of Raysville. These sandstones when disintegrated, make a poor soil, but fortunately, in the valley of the Scioto, the underlying rock is covered with the richest alluvium brought down from the north. In addition to this alluvium are the terraces on the Scioto, which are made up of the sands and gravels of the more northern drift. As these gravels are largely limestone in their composition, these terraces or plains are very rich and productive, and yield enormous crops of corn. This simple fact explains the marvellous fertility of the Pickaway and other plains along the Scioto valley. Many of the strata of the Waverly sandstones are peculiarly adapted to the purposes of building, and most valuable quarries are now wrought in the valley of the Scioto, and on the Ohio river, where this formation crosses into Kentucky. The name of the group is derived from Waverly, a locality in Pike county, where the sandstone has been largely quarried. It is a beautiful, fine-grained rock, easily quarried and wrought for architectural purposes. While the soil made by the disintegration of the Waverly rocks is generally poor in quality, yet it is thought to be peculiarly well adapted to the grape, and to fruit culture generally. Some of the finest peach orchards in the West are planted in the Waverly hills, and the southern and eastern slopes are thought to be well adapted to grapes. In the neighborhood of the Ohio river extensive vineyards are now being established among the hills of this group.

Conglomerate.—This rock, which is generally coarser in material than the adjacent sandstones, is found between Raysville and Cincinnati Furnace. It is above the conglomerate that we find the productive coal measures. The value of the conglomerate as the saliferous rock of Ohio will be described under its appropriate head.

Carboniferous.—Coal.—We find the coal first appearing in the hills in the vicinity of the Cincinnati Furnace, a few miles east of Raysville. Here the coal seams are thin, although under favorable circumstances they might be worked at a profit. Further examinations in the neighborhood might reveal greater thickness. On Pigeon Creek, south of Cincinnati Furnace, the lowest seam of coal lies a few feet above the conglomerate, and is, where mined, (on the land of Jacob A. Sell) thirty-eight inches in thickness. The upper six inches are cannel coal of fine quality. The lower part, that is, the bituminous coal, judging by the sample obtained by my assistant, is of very superior quality, and unusually free from bisulphuret of iron. This seam of coal is probably the same as the one now being opened on Salt Creek, three miles west of Jackson, by the Diamond Furnace Company, and also the same as the shaft seam now mined about thirty feet below the surface of the ground at Jackson. The reasons for this opinion are:

First—The geological position of each, in its relation to the underlying conglomerate.

Second—There is, over the coal in the shaft at Jackson, a peculiar bluish, arenaceous shale, twenty-two feet thick. My assistant reports that he found a similar shale over the coal at the mine of Mr. Sell, on Pigeon Creek. The fire-clays and shales under the coal also correspond in character.

Third—In the small specimens of the several coals furnished me, a similarity was observed; but this evidence is not conclusive, as the specimens have not been analyzed. It is probable that a seam of coal found near the bed of the stream on the farm of Dr. Wolf, two or three miles northwest of McArthur, is the equivalent of the same seam. The same coal is reported to be found much higher up the hills several miles west of McArthur. It is the lowest workable seam in the coal measures, and, although not yet tried in a large way, it is believed to be peculiarly adapted to the reduction of iron ore. It has the same geological position as the famous Briar Hill coal, of the Mahoning Valley, and has a remarkable resemblance to it in chemical characteristics. The analyses are as follows:

Shaft coal, Jackson.	
Bitumen	34.45
Fixed Carbon	63.04
Ash	2.51
	100.00
Coke	65.55

Briar Hill Coal, Youngstown.	
Bitumen	35.966
Fixed Carbon	61.244
Ash	2.790
	100.000
Coke	64.034

Both varieties of coal are represented to be remarkably free from bisulphuret of iron. Prof. J. S. Newberry, of Cleveland, Ohio, an eminent geologist, who analyzed the Briar Hill coal, says in his "Report on the Economical Geology of the route of the Ashtabula and New Lisbon Railroad:" "The coke is hard and bright, retaining to some extent the form of the coal. Ash, light yellow, aluminous; contains very little iron; will not readily clinker. This coal yields 3½ cubic feet good gas per pound. We find it at a somewhat variable distance above the conglomerate, but generally within fifty feet, and from its peculiar qualities and its proximity to the lake market, it is, perhaps, the most important and valuable of the series. This seam of coal is traceable throughout nearly the entire line of out-crop of the coal basin in Ohio, and has, everywhere, certain characteristics which distinguish it from all others. * * * * This stratum is worked at Tallmadge, in Summit county, at Massilon, Stark county, in the vicinity of Sharon, Pa., and still more extensively in the Mahoning Valley—where it is known as the Briar Hill, or Mahoning Valley coal—and from whence it has been largely exported to Cleveland, commanding the highest price of any coal sold in that market. * * * This enjoys the honor of being the only western coal as yet successfully employed in the raw state in the reduction of iron by means of the hot blast; and many thousand tons of iron are annually manufactured through its agency by this process. Aside from the manufacture of metals, to which this coal is peculiarly adapted, it answers well for the generation of steam, especially where the draft is not strong; its open-burning quality giving free passage to the air, and preventing the clogging of the grates. It is, therefore, preferable as a steam coal on the lakes to any other variety. When the draft is strong, a more adhesive coal will be found more economical, and should be used."

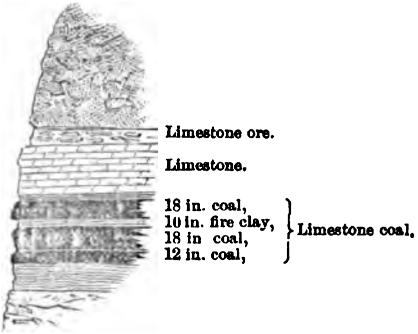
The Jackson shaft coal has been successfully tried in the coal-burning locomotives on the M. & C. R. R. This is regarded as a good test. It is possible that it is too free-burning where the draft is strong, but this may be remedied by mixing it with more caking coals. Whether this seam resembles the Briar Hill in its unequal distribution, remains to be determined. The latter is found in local basins, and is not evenly distributed over large areas. Should the Jackson seam prove extensive and underlie the iron ore belt along the M. & C. R. R., and the Scioto and Hocking Valley branch, it will prove of incalculable value in smelting the abundant ores. From samples of the coal shown me I have little doubt that, in the hands of intelligent furnace-men, who have had experience in the use of bituminous coals in iron making, this coal will be found to answer an excellent purpose in the reduction of ores. Two furnaces, one at Jackson and the other near by, are soon to use this coal, and the experiment is likely to be tried under favorable auspices. The parties who have purchased the Diamond Furnace have successfully used the Briar Hill coal in the manufacture of iron, and will bring to the use of the Jackson coal a large experience. The experiments which will doubtless be made in boring for petroleum will probably decide the extent and range of this seam of coal. I would suggest that careful records of wells be kept. At Jackson the coal is found from 30 to 40 feet below the surface of the valley. The dip is nearly east, and hence wells bored to the east, or in any direction having an easting from Jackson, would strike the coal at an increased depth. At Jackson the coal is three feet and nine inches in thickness, and remarkably homogeneous in quality. If the coal before referred to, on Dr. Wolf's farm, northwest of McArthur, is the same coal, the presumption would be that the seam is continued over a large area.

There are probably two seams of coal lying above the lowest seam and between it and the well known limestone coal. Near Hamden is a seam of coal which has been worked to a considerable extent. I had no opportunity of examining it. It is perhaps the equivalent to a seam of coal which lies from forty to seventy feet below the limestone coal. This seam has considerable range and varies much in character. Where first seen, in coming to the surface, near Zaleski, it is somewhat impure and has generally been known as the "Splint Coal" seam. On the Vinton Furnace lands this seam is well developed and the coal is mined for domestic uses. It is five feet and six inches in thickness, from which are to be subtracted nine or ten inches of slate. This seam is probably found low in the hills in all that region. On the Buckeye Furnace lands, several miles south of Vinton, this seam is found changed into cannel. It continues as cannel probably over a considerable area. It has been mined, but chiefly by "stripping," and the old excavations are now filled up so as to prevent measurements. The coal is of good quality, burns freely in the grate, and would doubtless answer a good purpose as a gas coal, and also for distillation into oil. If this coal seam continues westward, its place would be very high in the hills in the vicinity of Jackson. The "Howe seam," near Jackson, may be the equivalent; but to determine this, and similar questions of equivalency, further examination will be required. The "Howe" coal is excellent in quality, and has been highly valued. It is reported as between three and four feet thick.

The *Limestone Coal*. This seam of coal is of wide extent. I have seen it at various points from McArthur, north of the Marietta and Cincinnati Railroad, to the Ohio river, in the neighborhood of Ironton. At various places it is largely mined and serves a good purpose for ordinary uses.

This seam of coal lies under a seam of fossiliferous limestone, and upon the limestone rests the well known limestone ore. The following section will show the relation of these three strata which now play so important a part in the economic geology of southern Ohio:

FIG. 1.

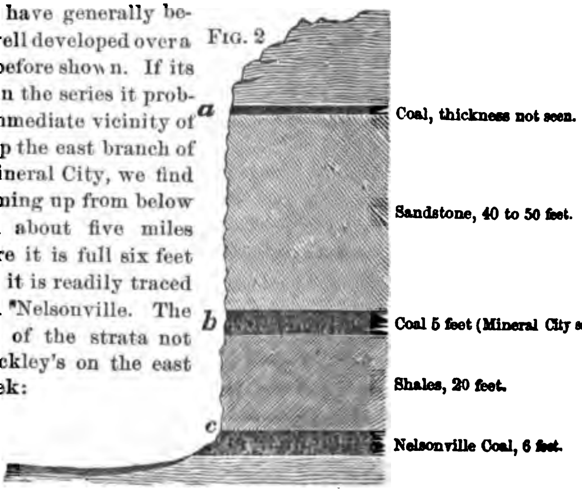


The coal seam is generally about four feet in thickness exclusive of slate. There is a parting of fire clay about ten inches near the top, and sometimes a thin parting, about two inches thick, near the bottom.

The ten inches of fire clay serve for the "bearing in;" hence, in mining, the good coal on the bottom is saved. The upper part above the ten inches of slate is not regarded as very good, but it answers a tolerable purpose for grate use. The eighteen inches next below the ten inches fire clay are used for smith purposes. Its proximity to the limestone ore makes it worthy of trial for making iron. This seam varies somewhat in different localities, but it is generally of fair working thickness, and from its wide extent it is destined to be very largely used in the several counties through which it is found. The State geologists in 1838, regarded this seam as the equivalent of the Nelsonville coal. This equivalency is in my mind somewhat doubtful. The limestone coal receives its name from its association with a remarkably persistent seam of limestone which can be readily traced from the Ohio river to localities north of the Marietta and Cincinnati Railroad. Resting upon the limestone is the famous stratum of iron ore called the "limestone ore." In this ore we find a tendency to pass into flint. At McArthur it is a porous buhr, and is used for millstones. At Pomeroy the buhr stratum, with the coal five feet in thickness under it, was passed in boring for salt, about six hundred and fifty feet below the Pomeroy seam of coal. This proves the wide range of the "limestone coal."

Nelsonville Coal. It is somewhat doubtful, as has been previously intimated, whether this seam of coal is well developed directly on the railroad. Its place would be not far below the seam now mined at mineral City. If it is the continuation of the limestone coal, as our geologists have generally believed, then we have it well developed over a large area, as has been before shown. If its place is a little higher in the series it probably thins out in the immediate vicinity of the road. In passing up the east branch of Raccoon Creek from Mineral City, we find the Nelsonville coal coming up from below the bed of the stream about five miles north of the road. Here it is full six feet thick. From this point it is readily traced to Meeker's Creek and Nelsonville. The following is a section of the strata not far from Mr. Peter Beckley's on the east branch of Raccoon Creek:

FIG. 2


a
Coal, thickness not seen.
Sandstone, 40 to 50 feet.
b
Coal 5 feet (Mineral City seam.)
Shales, 20 feet.
c
Nelsonville Coal, 6 feet.
East Branch Raccocn Creek.

Two miles north of Mr. Beckley's, *b* and *c* are only eight feet apart. If the Nelsonville seam should be found about twenty or thirty feet below the seam now worked at Mineral City (its geological position), it would rise into the hills on the Hope Furnace and Zaleski estates On the Zaleski lands there is a seam of limestone on which rests a seam of ore. The limestone was, at the time of my visit, covered up, and I had no opportunity to determine by lithological and fossilliferous characters, its identity with the regular ore bearing limestone, which has elsewhere so wide a range. If it is thus identical, the position of the limestone coal seam would be just below it. I was led to believe that the true position of the Nelsonville coal would be higher in the Zaleski hills than the elevation at which the limestone is found. At Nelsonville, where the seam is largely mined, there is no limestone directly above the coal. At Chauncey, on the Hocking river, between Nelsonville and Athens, the Nelsonville coal is found by shafting at about one hundred feet below the surface. Here no limestone or buhr stone was found above it. At Chauncey the coal is six feet in thickness and is profitably mined for use in the salt furnaces. At Athens the same seam has been passed, in boring for salt, at a depth of about two hundred feet, and a shaft is now being sunk for the purpose of mining it. The Nelsonville coal has a high reputation for quality, and it is extensively taken by canal to Columbus and other markets in that direction.

There are, above the proper position of the Nelsonville coal, two other seams as seen in the hills on the east branch of Raccoon. One of these seams is worked at Mineral City and at several points west. The coal at Mineral City, King's Switch, Moonville and Hope Furnace stations is of good quality, and justly esteemed a grate coal, although the seam is not very thick. Like all coal seams directly under sandstone, the thickness of this coal is variable, the upper surface being quite undulating. Hence it is difficult to give a measurement of the seam which will be accepted by those interested in the lands and mines as a fair average. The Mineral City seam varies from twenty-two inches to five feet. The latter thickness is, however, quite exceptional. On the Zaleski estates, the coal is mined near the Hope Furnace station, and at a location north of the railroad and between Hope Furnace and Zaleski stations. To the latter mines a branch railroad has been extended. The coal near Hope Furnace station is now being profitably mined by the Zaleski Company. I have seen no analysis of the coal, but from its external appearance I think I can not be mistaken in calling it a superior quality of coal for the parlor grate. At the other mines on the Zaleski lands two seams are worked. These are about sixty feet apart in vertical distance. The lower seam is three feet and a half thick, and the upper four and a half feet. The upper is the one principally mined at this time. The general quality of the Zaleski coals, of both seams, is excellent, and the coal is highly esteemed in Cincinnati for domestic uses. From the comparatively free burning character it is preferred for cooking stoves. It possesses the important elements of a parlor grate coal, and properly tried, can not fail to be popular.

Although mining operations have been attended with a reasonable measure of success, it is safe to say that success would have been far greater if the equipments of the railroad company had been such as to enable the mining company to transmit larger quantities of coal to Cincinnati, at such times as the market was unsupplied from the Ohio river, and the price consequently very high.

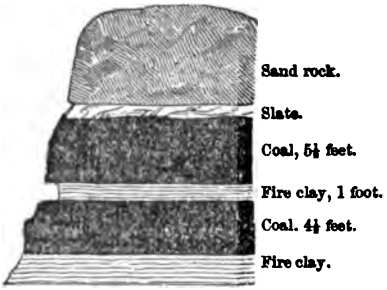
There is a seam of coal, reported to be four feet thick, appearing near the level of the railroad, about three miles east of Athens. This is generally known as the Steiger Bank. This coal is mined at the present time. This is probably the same seam as that which shows itself at about the same elevation a few miles up the Hocking river, near the salt works of M. M. Green & Co. It has not been thoroughly opened at any point, but, from its position above the surface drainage, it is worthy of investigation.

High in the hills, near Athens, is a thin seam of coal, of little economic value, which is probably the continuation of the "big vein" on Federal Creek. Judge Pruden's mine in the hills, not very far from Warren station on the railroad, is probably in the same seam. At this point the coal is not thick, but is profitably worked for the supply of the salt works in the neighborhood. This seam, however, attains its maximum thickness on Federal Creek and Marietta Run. On the latter stream a branch emptying into Federal Creek about a mile north of the railroad, this coal is ten feet thick. The coal is subdivided by a parting of fire-clay about one foot thick. There appears to be a local duplication of the regular seam, caused, doubtless, by a slight depression into which the waters brought and deposited fine sediments which now constitute the fire clay. On this clay, as a floor, the upper coal was formed. A section of this remarkable seam presents the following appearance:

The first few inches above the fire-clay is somewhat slaty but would doubtless answer for boiling salt and similar uses.

The rest of this large seam, say nine feet, is homogeneous in structure and excellent in quality.

Fig. 3.



The following is an analysis of the two portions, by Prof. J. S. Newberry, of Cleveland:

Lower portion.		Upper portion.	
Fixed Carbon	47,119	Fixed Carbon	48,010
Bitumen	45,781	Bitumen	44,855
Ashes	7,110	Ashes	7,135
	100,000		100,000

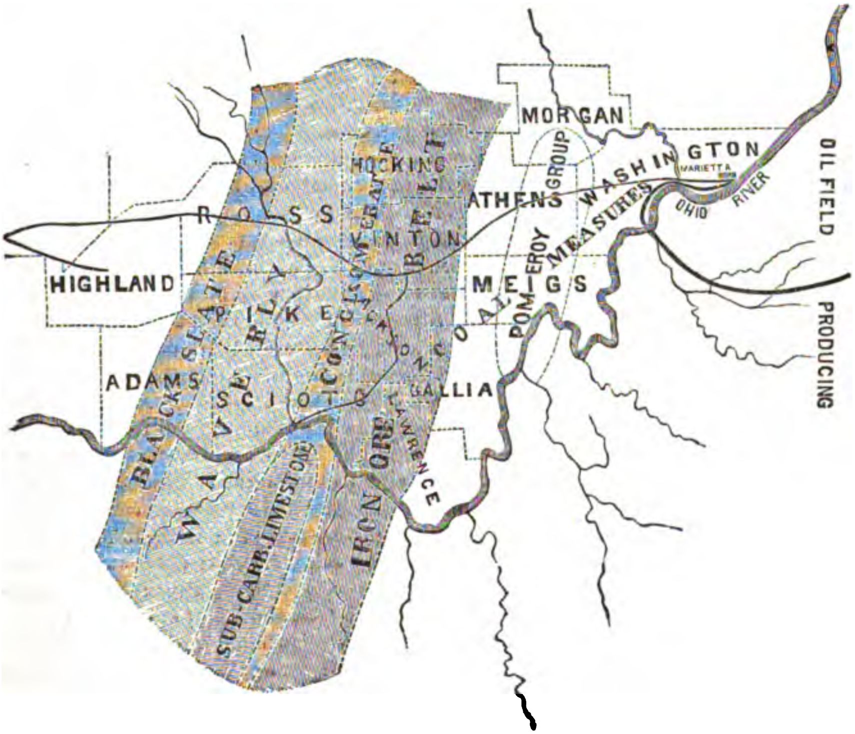
On Big Run, there is a seam of coal about sixty feet higher than the last. It is not yet developed.

To show the extent of the coal field which is being developed by your road, let us compare it with the most famous ones, probably, of the Old World. We quote from David Dale Owen: "The celebrated Newcastle coal field, which supplies more than one-third of the entire product of Great Britain, and from which most of the coal burnt in London is obtained, has an area of from seven to eight hundred square miles. The entire thickness of the measures is sixteen hundred and twenty feet, varying, however, in different parts. The total thickness of the twenty-five coal seams is from forty to sixty feet, the beds varying from a few inches to six feet; but there are seldom more than five seams that are workable, and often not more than one or two exist in a locality."

The Southern Ohio region, which is directly tributary to your road, is seventy five miles in length and forty miles wide, making an area of three thousand square miles. Counting only those seams that are workable, we have over forty feet as the aggregate thickness. The total thickness of the Coal Measures in Ohio is about twelve hundred feet. Again, the principal seam of the Newcastle field is six feet thick, while one of the seams of this region has a thickness of ten feet. In order to estimate the actual amount of coal in the field, and I am now considering only the out-crop, let us represent it by a stratum forty feet thick twenty miles wide (allowing half the distance across the region for loss on the out-cropping strata) and seventy-five miles long. If, as is estimated, there are 1,000,000 tons of coal to one square mile of a layer one foot thick, there would be 40,000,000 tons to one square mile of this stratum, and multiplying by number of square miles, or 1,500, we have for the amount of coal 60,000,000,000 tons. These figures relate only to those seams which are for the most part above surface drainage. The presumption is that most of the seams continue under the surface of the coal basin and may be reached by shafts It is by deep shafts that most of the coal in Great Britain is obtained. The total quantity of coal in Southern Ohio which is accessible by drifting and shafting is almost beyond calculation, and the time will come when our coal will sustain large and busy mining and manufacturing cities.

IRON ORE.

By reference to the accompanying map the range of the productive iron ore measures will be readily seen. The conglomerate contains more or less iron. Sometimes the rock is merely stained by iron, and in other places the ore is found in small local deposits and may be regarded as heralding an iron period. soon to appear. In Kentucky there is a fine seam of ore resting above the sub-carboniferous limestone and below the conglomerate. This is finely developed upon the lands of the Daniel Boone Furnace Co. In Ohio the ores, beginning with the conglomerate, are found in several seams, interstratified with the sandstones, shales, &c. The most famous seam of ore. and the ore most worked, is the "limestone ore," which rests upon a remarkably persistent seam of fossiliferous limestone. Between the conglomerate and this limestone ore are several seams of "block ore," varying in thickness at different points. These often disappear and other seams take their places.



The black line commencing in Highland county, and terminating at Marietta, represents the M. & C. R. R.

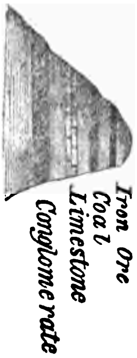
A section made by Seneca W. Ely, Esq., of a hill near Cincinnati Furnace, shows four seams of block ore, containing in the aggregate from twenty-six to thirty-eight inches.

Some of this ore is poor, but much of it is valuable, especially when mixed with the limestone ore. At Jackson Furnace, Scioto county, there are three seams of ore called "Little Red," "Middle" or "Sand Block" and "Big Red," all lying considerably below the position of the limestone ore. The Harrison Furnace, which lies west of Jackson Furnace, in the same county, uses, from its own estate, block ores, of which a fine development in thickness and quality has recently been found. With this ore they mix an equal quantity of limestone ore, procured from their lands upon the railroad.

Several furnaces situated upon the western border of the iron belt, make their iron exclusively from the lower or block ores. The iron is said to be of excellent quality, and meets with a ready sale. Generally, those furnaces which have good block ores use them in preference as a mixture with the limestone ore. On the other hand, many furnaces which have an abundance of limestone ore are satisfied to let well enough alone, and prefer not to try any experiments in the way of mixing ores. The limestone ore, while it is no richer in iron than some of the selected block ores, is easily reduced and makes an iron of superior quality. The iron has a high reputation, and commands the highest market price. The drawback to this ore is the fact that, in some localities, it contains more or less flint. This difficulty only troubles certain localities, and the flinty ores can be easily rejected. It is a fact of no little scientific interest, that there was at the time of the deposition of the limestone, and the ore resting upon it, a struggle between carbonate of lime, and iron and flint for the ascendancy. In some places there is found almost nothing but limestone; in others the flint is wanting, and in still others the flint takes the place of both iron and lime. Where this flint is open and porous it constitutes a rough, ragged rock, which may be used as buhrstones for flouring mills. Formerly considerable numbers of millstones were quarried in the neighborhood of McArthur. I have known of most excellent stones procured from these quarries. The limestone ore is generally thick enough to warrant digging; its thickness ranging from six inches to seven feet. When of the latter thickness it is a local development and is not of wide extent; but the seam is often found ranging from twelve to eighteen inches thick over large areas. At a few places the ore is obtained by drifting into the hills, but generally the surface soil is stripped off and the ore taken up as far into the hill as the disintegrating forces have made the superincumbent strata soft. The old rule has been to remove a foot of earth for each inch of ore. For example, where the seam averages twelve inches, twelve feet of superincumbent earth may be profitably removed. This rule is not very strictly adhered to. It is probably safe to estimate that the limestone ore belt is twelve miles wide, from where, on the east, it disappears below the lowest valleys, to where it crops out on the tops of the highest hills on the west. Above the limestone ore are found two, and perhaps three seams of block ore, making in the aggregate about two feet in thickness. These seams are found in the hills along the eastern side of the ore belt. If we may estimate the aggregate thickness of the ores from the conglomerate to the limestone ore, including the latter, at five feet, we have for the whole ore belt seven feet of iron ore. In some localities the aggregate thickness will be ten or twelve feet. The ores vary in the per centage of metallic iron, but they range from thirty to fifty per cent. Chosen samples will yield sixty per cent. Selected limestone ore will make a ton of iron from two tons of ore. Generally, from the methods of digging the ore, it is somewhat dirty, and two tons and a half are allowed.

Thus far no black-band ore has been worked in Southern Ohio. In some localities the highly bituminous slate overlying the limestone coal is charged with iron, containing perhaps fifteen or twenty per cent. of that metal. If these overlying slates were carefully examined over this wide range of limestone coal, I have little doubt that at some points good black-band ore would be found. The fact that above the limestone the iron is abundant, and that the iron is often diffused through the limestone, making it ferriferous, gives a strong antecedent probability that at many places the black slates immediately below the limestone will be also largely charged with iron. Black-band ore might also be found at other points in the series of strata, either above or below the limestone coal, and all the black bituminous slates are worthy of careful examination. To aid somewhat in this, I give, as a sort of guide, See the following group of strata, in which the black-band ore is found in Mahoning county, where it is extensively and profitably smelted:

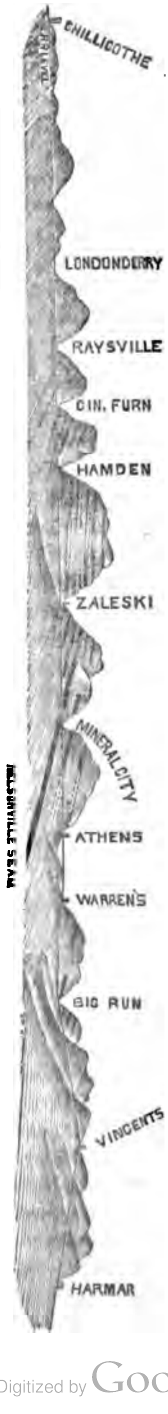
	Ft.	In.		Ft.	In.
Iron ore, (Kidney ore)......	0	6	to	1	6
Limestone................	0	0	"	8	0
Shale....................	0	0	"	10	0
Coal.....................	2	0	"	3	0
Black-band ore...........	0	8	"	2	0
Coal.....................	0	5	"	1	0



Three and a half tons of black-band ore, in the raw state, make a ton of iron, but the ore varies in richness in different localities. This ore is very easily smelted, requiring but two-thirds the amount of fuel used for other ores. The iron made from it is peculiarly well adapted to castings, is very fluid when melted, and makes a smooth surface. I would remark that black-band ore will hardly be found in our ore measures in Southern Ohio, unless methods, less desultory and more intelligent, are employed in the search for ore than those now too often employed on our furnace estates. Generally, the finding of ores is left to accident, or to laborers, who are guided by no intelligence or system. The wonder is that on some of the furnace lands such men should find ore at all.

The ores of Southern Ohio, are classed under carbonates and hematized carbonates. As has been previously stated, the seam of ore most prized is the limestone ore. This, in the out-crop, is a hydrated peroxide of iron, but further in the hill, where it has been excluded from atmospheric influences, it is probably a proto-carbonate, but often mixed with peroxide.

The ores of the lower coal measures are largely used in Pennsylvania, but Mr. J. P. Lesley, in his "Iron Manufacturer's Guide," says, "they will hardly bear comparison with those of the grander outspread of the same formations in Ohio, Kentucky and Western Virginia. * * * * It is these ores that have furnished in Southern Ohio the supplies for the numerous furnaces about Hanging Rock, and at other points, the iron from which has a reputation almost equal to that made from the genuine hematites of the metamorphic rocks. They abound more around the margins of the great coal fields where the lower members come to the surface, than in the middle portions."



Section of M. & C. R. R., from Chillicothe, in Ross county, to Marietta, showing the coal and iron ore along the route.

It is a fact of no little interest, that the Marietta & Cincinnati Railroad, with its Portsmouth branch, opens to profitable development a very large portion of one of the finest iron regions in the world. Instead of crossing this iron belt directly, the road lingers in it as if loth to leave it. Going westward, the road enters the belt near Hope Furnace, then it takes a southern direction to Hamden, sixteen miles. Thence passing a little north of west the main road crosses the lower strata of the ore belt at right angels with the line of strike, and leaving the iron district a little west of Cincinnati Furnace.

The Portsmouth branch, leaving Hamden, runs towards the western edge of the belt at Jackson, and there enters the fields of the Jackson "Shaft coal." Thence it passes toward the eastern side of the belt at Portland, offering the facilities of a good road to the many adjacent furnaces. Thence gradually bearing west, it leaves the belt in the neighborhood of Sciotoville.

The probable extension of the Ironton Railroad, which is already more than half finished, meeting the Portsmouth branch a few miles west of Pioneer Furnace, will complete a line of railroad, extending for a distance of about seventy-five miles along this region of out-cropping strata of iron ore, giving to more than thirty furnaces in its immediate vicinity the advantage of ready transportation. No small importance should be attached to the fact that this road, carrying and distributing the limestone ores from the center of the belt to the furnaces on the west and east sides, where the block ores abound, facilitates a mixture of ores, which is considered so desirable by many furnace companies. As the Lake Superior ores are profitably used in the furnaces of Eastern Ohio, why may not the Missouri iron ores, from Iron Mountain, &c., of equal value, transported by railroad to St. Louis, then up the Ohio river to Portsmouth, and thence distributed by means of your railroad throughout this section, be also used with advantage in mixing with the ore of our coal measures? The expense of transportation cannot be greater than that of bringing the Lake Superior ore to furnaces on the Ohio river above Wheeling, and to other points in Eastern Ohio.

The location of your road, viewed in the light of the iron district through which it passes, is most remarkable, and to be fully understood, the accompanying map should be carefully studied. (See page 255.)

It may not be out of place in this general discussion of the inexhaustible ore beds of Southern Ohio to present the following extracts from a recent communication to the Chicago Tribune, from the pen of Prof. Daniels.

"An invention of vast importance to American mines and manufactures, and especially to those of Illinois, has recently been introduced by some of the enterprising citizens of Pittsburgh. After careful and thorough experiments its merits are now fully established, and it undoubtedly deserves to rank among the greatest discoveries of the age. It is essentially a new method of generating and applying heat in the process of metallurgy, and is called the "Sieman Furnace." The inventor is a German who resides in England, where, as well as on the Continent, the furnaces are being extensively and successfully worked. The principle is applicable to all the processes of reducing, refining and working metallic ores or metals, and indeed, wherever heat in large quantities is required. The most valuable feature of this invention as applied to our western interests, is in its use of the poorer qualities of coal. The most sulphurous coal, and even the slack and waste of the mines are just as valuable in the Sieman Furnace as coals of the best quality, if they contain the same proportion of combustible matter. The sulphur and other impurities are rendered harmless by the mode of combustion, and the highest temperature possible is gained with wonderful economy of fuel."

The principle on which the required heat is obtained without bringing the iron in direct contact with the coal is one of the highest moment in making iron. Prof. Faraday, of England, the highest possible authority on such a subject, said, in a recent lec ture before the Royal Institute: "The Sieman process is founded on philosophical principles, and is destined to play an important part in all metallurgical operations."

Sir W. Armstrong, late President of the British Association for the Advancement of Science, and celebrated as the inventor of the Armstrong gun, also strongly commends the Sieman furnace.

Most of the furnace companies in Southern Ohio, have an abundance of coal on their lands. Should the Sieman method of making iron warrant the commendation it is receiving from practical iron men, the number of furnaces in Southern Ohio could be almost indefinitely increased. Now, to secure a permanent supply of charcoal, the companies own from five thousand to ten thousand acres of land. By the Sieman method of manufacture, a few hundred acres of choice ore land with a seam of coal would be all the land required.

By an inspection of the horizontal section it will be seen that the iron ores are not confined to the limits of the iron belt where the ore seams crop out, but these seams doubtless extend through the whole range of the Ohio coal measures. The ores of the carboniferous formation in great Britain, are almost exclusively obtained by shafts far below the surface of the ground.

Supposing the iron ores to extend uniformly over half of this belt, or seven and a half miles, and the length of that portion of the belt, included in this report, to be seventy-five miles, we have an area of five hundred and sixty-two square miles.

With an aggregate of seven feet of ore there would be 4,061,986,133 cubic yards, which, according to the usual estimates, would yield 1,624,794,449 tons of metalic iron.

There are about forty furnaces in this region, consuming annually not far from two hundred thousand tons of ore, from which are made eighty thousand tons of iron.

At sixty-five dollars a ton, this would be worth five millions two hundred thousand dollars. The dividends of profits have, during the past year, been very large, ranging from twenty to nearly forty dollars a ton, when iron was seventy dollars.

The capacity of the furnaces ranges from ten to sixteen tons per day. The length of the blast depends upon the quantity of stock which can be accumulated. During the past year, labor has been scarce and high, and few furnaces have been worked up to their full capacity.

SALT.

The principal saliferous stratum is the conglomerate, which underlies the productive coal measures. But the salt is not confined to this rock, but may be found in the sandstone of the Waverly Series below, and also in the sandstones of the coal measures above; but the strongest and most abundant brine is found in the conglomerate. It was in this rock that the original salt springs were found, west of Jackson, in Jackson county, which were, in the first settlement of the State, reserved by the Government. To increase the strength of the brine, wells were bored. The salt-bearing rock dips to the east, and now it is customary to bore wells at points quite remote from the outcrop of the conglomerate, with the design of reaching the rock at greater depths, in the expectation of finding stronger brine.

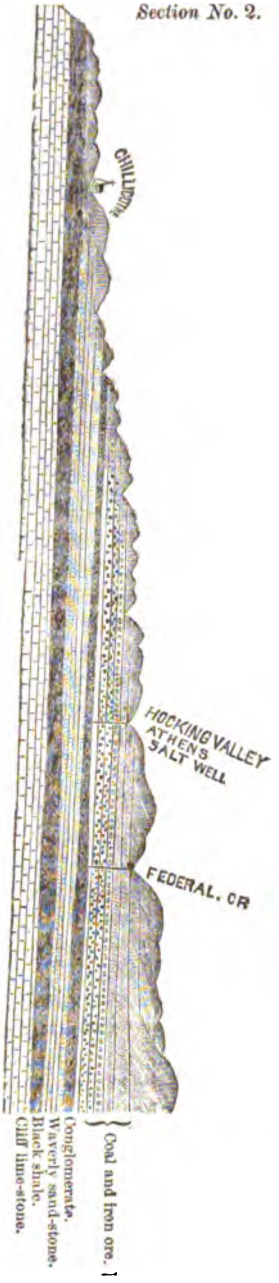
The water percolates through the somewhat porous sandrock, dissolving out the particles of salt, and it is supposed that the brine increases in strength as it descends the inclined plane. Section No. 2 will explain the position and dip of the conglomerate.

From Jackson, or its equivalent position, near the Cincinnati Furnace, east along the line of the railroad to Marietta, brine may doubtless be obtained anywhere by boring.

It might be strong enough for profitable evaporation at Jackson, but there can be little doubt as to the value of the brine at Zaleski, and almost anywhere east of that point. In the neighborhood of Athens, good brine is obtained at about seven hundred feet.

If the Federal Creek coal is the geological equivalent of the Pomeroy coal, as it doubtless is, we should certainly expect to find the salt rock at Big Run, Marietta Run and Federal Creek, and its tributaries, at the same distance below the surface as at Pomeroy, viz: about 1,000 feet.

Section No. 2.



General geological section of Southern Ohio.

A very deep well in the neighborhood of Pomeroy, has reached the depth of 1,245 feet, and has passed through the conglomerate and entered the fine grained or Waverly sandstone.

From Big Run the dip of the strata to the east cannot continue very far, since, by tracing the strata through Athens, Morgan and Washington counties, I find that the thin coal at the Narrows, on the Ohio River, below Harmar, under the heavy sand rock is the equivalent of the Big Run or Federal Creek seam. Hence the bottom of the basin is reached not far from Big Run, and from that point to Harmar the strata are nearly horizontal, subject doubtless to some undulations. This fact is most important and determines the depth at which the conglomerate, or salt rock will be reached in Washington county.

The three essential elements of profitable salt-making are: 1st, an abundance of good brine; 2d, fuel at minimum cost; and third, cheap transportation. The first of these can be obtained by boring to the salt or conglomerate rock. It is, however, generally believed that the deeper the conglomerate is struck, the stronger the brine. If this is so, the valley of the Hocking, near Athens, and the valley of Federal Creek, would be better locations than any farther west. Probably the latter locality would afford stronger brine than the former.

There is every geological reason to believe, that the brine on Federal Creek, and its tributaries near the railroad, would be quite as strong, and supply as abundant as that found at Pomeroy, since the coal seams in the two locations are equivalent and have the same relation to the underlying conglomerate.

The second element mentioned is found in the abundant coal on the line of the railroad. West of Mineral City, coal is found in all the hills. In the valley of the Hocking, one seam of coal, but little developed as yet, is found above drainage; but by shafting from one to two hundred feet, the Nelsonville seam of six feet in thickness can be obtained almost anywhere. The salt works on the Hocking have been in successful operation for many years. At Chauncey, the Nelsonville coal is reached at a depth of about 100 feet below the surface. On Federal Creek and its tributaries, there is no limit to the supply of coal. On Marietta Run, a branch of Federal Creek, the coal is nearly ten feet thick, and is so situated that the cost of mining would be very trifling.

It should be remembered that for the purpose of boiling salt, the inferior and refuse coal of the mine, which would not be suitable for market, may be used. Should the coal mines in the region be extensively wrought, the cost of the fuel necessary for carrying on a very large salt business would be almost nothing.

The third element, viz: Cheap transportation, the Railroad would furnish. The salt could be taken to the Ohio River at Marietta and there shipped, or that destined to supply the market in the central and north-western parts of the State, could be taken to Athens and shipped by the canal to Columbus.

There are few locations in the world where all the essential elements of successful salt manufacture are so happily blended. At the Salines, near Syracuse, New York, while the brine is strong, the fuel is very expensive. At Saginaw, Michigan, the brine is strong and abundant, but the fuel used is wood, which, in its preparation and transportation to the salt works, is very costly compared with coal at the mouth of a coal mine.

For several years the salt business in Ohio has been very profitable, companies having, it is said, declared dividends ranging from 50 to 100 per cent. on their capital stock.

I am indebted to Hon. E. H. Moore, of Athens, Collector of Internal Revenue for this district (No. 15), for the following facts relative to salt:

There have been produced in the district, during the year 1864, 1,677,774 bushels of salt, from the tax on which the Government has received $41,011.68.

FIRE CLAY.

Besides the coal and iron ore there will doubtless be found valuable seams of Fire Clay. None of these seams have as yet been extensively worked. There is a heavy stratum of apparently excellent clay on the lands of the Harrison Furnace Company, near Sciotoville. The trials which have been made of this clay in the manufacture of fire-brick are said to have resulted most favorably, and there is now a prospect that suitable works will be erected in that neighborhood for using this clay. Careful search will doubtless be rewarded in finding other seams equally valuable.

PETROLEUM.

The geological relations of petroleum are not as easily understood as those of the great mineral products—coal and iron ore. The latter can be seen and measured, but petroleum is found in subterranean fissures, and hence the questions of locality and quantity are involved in no little obscurity. We have learned, however, in what geological strata the oil has thus far been found, and can therefore estimate the probabilities of finding oil in similar strata elsewhere. We have also learned to estimate the significance of surface indications, as shown in oil and gas springs, and in the inclination or uplifting of the strata by which subterranean fissures may have been produced.

The two geological formations from which, in the United States, oil has thus far been chiefly found, are the carboniferous and devonian. The oil now produced in Western Virginia and South-eastern Ohio is all found in the coal measures. The oil on Oil Creek, Pennsylvania, is derived from devonian rocks. There are, however, several locations in Western Pennsylvania, such as Smith's Ferry and Drunkard's Creek, which are in the coal measures. Fortunately, the M. & C. R. R. passes through both of these oil-producing formations. In the *carboniferous rocks* in Ohio, we already have remunerating oil wells in Washington, Noble, Morgan and Athens counties. In these counties the more promising lands are in a state of transition from the hands of the farmers into those of men of capital and enterprize, and large results are hoped for. The geological positions of these counties is essentially the same. They all lie upon the upper part of our Ohio coal measures. Washington county, for the most part, is a little higher in position than the others.

If we take the Pomeroy coal-seam as our geological horizon, and follow that horizon through Meigs, Athens, Morgan, Noble and Washington counties, we shall find that the principal part of the oil yet obtained has been found in strata lying from fifty to three hundred feet below that horizon. I state this simply as a fact. It would not be safe to infer from it that the oil is limited to these three hundred feet.

Very few wells have been bored very deep, and of these several have struck good veins of oil. The fact is significant, however, in revealing a very large area of oil territory of no little promise.

Other counties, besides those already named, lying upon the M. & C. R. R and its Portsmouth Branch, are not without their claims to be good oil territory. Surface indications of oil are said to exist along the Raccoon and its tributaries, and on several other streams. I have not had time to investigate these indications, but there are no geological reasons why oil should not be found in the coal measures west of Athens county. Lands in that region are being sought after, and many wells will be bored to test them during the coming summer and fall.

The carboniferous strata, from Big Run, westward, are all inclined to the east or a little south of east. The amount of dip ranges from ten to forty feet per mile. The force causing this general uplift has doubtless produced many subterranean fissures. I have also found, as the result of instrumental surveys, marked undulations in the strata. These undulations would probably necessitate more or less fissures along their anticlinal and synclinal lines. Such undulations have been found in the vicinity of Big Run.

It is possible that in many cases the fissures have great vertical range, and perhaps extend down through the carboniferous into the devonian rocks, in which case the oil is similar in origin to that on Oil Creek, Pennsylvania. This fact may be of great importance in determining the economical value of our oil fields.

THE DEVONIAN OIL FIELDS.

West of Cincinnati Furnace, in Vinton county, we enter the out-crop of the Waverly sandstones. Under this group lies the black slates, which crop out a little west of the city of Chillicothe.

By reference to the accompanying map the geographical and stratigraphical positions of these two members of the devonian formation will be readily seen and understood. The Waverly sandstones are a group of the highest interest in an oil point of view, being the Ohio geological equivalents of the oil-bearing rocks on Oil Creek, Pennsylvania, now the best developed and most productive oil region of the world. In order to understand the rocks on Oil Creek, I give a section showing the geological structure of that region.

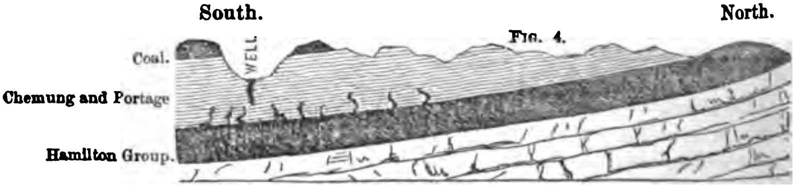


Fig. 4.

Low down on Oil Creek the coal is seen on the tops of the highest hills. Underneath the coal measures are the Chemung and Portage rocks, chiefly sandstones. It is in these sandstones, and principally the "third sand rock," so called, that the largest oil fissures are found. Below the sandstones are the black bituminous slates of the Hamilton group. These black slates are rich in bitumen and consequently in oil, and the simplest and most scientific explanation of the origin of the oil is, that it is produced by distillation from these bituminous slates.

Doubtless large fissures extend down into these slates. The bituminous vapor rises in these fissures and a part is condensed into oil and part remains as gas. In boring wells these fissures are struck. If the fissure is penetrated favorably, the pent up gas forces the oil up, and there is a flowing well. The amount of bitumen in the black slates has been estimated to be greater than the aggregate of all the bituminous matter in all the coal seams of the coal measures. It is not therefore to be wondered at that there are on Oil Creek vast accumulations of oil.

Having thus briefly discussed the geological relations of the oil wells on Oil Creek, Pennsylvania, now the standard oil region of the world, the way is prepared to speak intelligently of the Ohio equivalents of the Pennsylvania rocks. The Oil Creek sandstones are readily traced westward into Ohio. At Mecca, Trumbull county, much valuable oil has been found in them. These rocks sweep around to the south, and pass down through Licking, Fairfield, Pickaway, Ross, Pike and Scioto counties, entering Kentucky in Greenup and Lewis counties.

By referring to the general geological section accompanying this report, these sandstones marked as "Waverly" will be seen, with the coal measures resting upon them to the east and the black slates underlying them. These slates are, in many places, rich in bitumen, and oil can be readily distilled from them.

I have not been able to investigate the question of surface indications of oil in all the counties above named, but at points between the M. & C. R. R. and the Ohio river, I have myself seen oil and gas springs. The surface oil proves that some oil has been distilled from the black slates, and come up through fissures to the surface.

The question of quantity alone remains to be determined. This depends upon the number and extent of the subterranean fissures, questions which wells alone can decide.

I have thus presented the geological evidences in favor of finding oil in the Waverly rocks.

The supply of oil from Pennsylvania has been diminishing, while the demand is greatly increasing, and new oil fields are being sought for. It is certainly reasonable to hope to find other "oil creeks" in the geological equivalents of the original Oil Creek. These Ohio rocks are entirely undeveloped, but they are certainly worthy of being tested. Many years since I investigated the history of a salt well, bored forty-five years ago, near the mouth of Munn's Run, in Scioto county, and was led to believe, from the amount of oil and gas it had thrown up, that had the well, when first bored, been properly tubed and treated as an oil well, it would have been a flowing one. Large quantities of gas and some oil are now thrown up. This well is in the Waverly sandstones. Other salt wells in the vicinity revealed oil.

I have thus briefly noticed the leading objects of attraction in the economic geology of the region traversed by the M. & C. R. R. and its Portsmouth branch. It was impossible to make the examination as minute and as full as I could desire. A complete examination of our vast mineral resources can only be made under the auspices of the State, in a geological survey, and this work would involve the labor of intelligent men for years. Such a survey should have been made twenty-five years ago, and the interests of our people have greatly suffered for the want of it. The mineral wealth of Ohio is enormous, and the time is rapidly approaching when it will be appreciated and developed. Such vast resources as are found in the region tributary to the M & C. R. R. will ere long give employment to a large mining and manufacturing population. There is no limit to these resources of salt, coal and iron, yet all grouped along one railroad.

By the present method of making iron with charcoal, tens of thousands of acres of the finest iron ore and coal lands are kept in forest. This will not continue, for the time is coming when the coal in our hills will melt the ores of our hills. Should the principle of the "Sieman furnace," already referred to, have the practical value which Professor Faraday and Sir W. Armstrong claim, the problem is solved. Should it fail, other methods will be tried until success is achieved. Then Zaleski, Jackson, Ironton, and other places in the iron belt, will become great business centres, whose iron manufactures shall rival the Pittsburgs of the new world and the Sheffields of the old.

The statistical tables will show the number of bushels of coal mined and the number of tons of pig iron produced in this region.

METEOROLOGY.

In the report for 1858, in conjunction with Prof. Mather, I presented a somewhat elaborate essay on the meteorology of Ohio. Since that time correct records have been kept in various portions of the State. Much of the agricultural success of any country is due as much to its meteorology as to its soil; therefore, in order to make an accessible record, I devote several pages to these records as kept by very competent and intelligent gentlemen.

ANNUAL METEOROLOGICAL SYNOPSIS FOR THE YEAR 1865.

Observations taken three times per day by J. B. Trembley, M. D., in the City of Toledo, Ohio: Latitude N. 41° 38′ 47.04 *longitude W.* 82° 22′ 17.75″; *height above the sea,* 604 *feet*

Meteorology, in the present acceptance of the term, seems to be now nearly confined to that department of Natural Physics which treats of the phenomena and modifications of the atmosphere as it regards heat and cold—dryness and moisture—quietude and motion—in all their bearings relative to weather and climate. From the character and nature of the subject, its bearing always upon the pleasure, happiness, comfort and necessities of man, it has, therefore, attracted the attention and occupied the thoughts of men's minds from the most remote antiquity. In the early ages of the human race, when living in the open air, without protection of clothing, or comfortable habitations to protect them from the inclemency of the season, the knowledge that could be obtained by observing the phenomena that indicated a change of weather was eagerly sought after, and traditionally passed down from one generation to another; so that prognostics anticipating atmospherical changes have ever been household words among all people. Nor, really, has much change been made in these prognostics for many centuries—being like all phenomena of Natural Philosophy, like causes ever producing like effects. The reflective and peculiar minds of the early Egyptians, who were the founders of Astronomy, made weather prognostics a branch of this science, and were a matter of record in their astronomical observations; but other than classification of these prognostics of the weather—of wind, of rain, and of storm—no progress was made until TORRICELLI, near the middle of the sixteenth century, discovered that the atmosphere possessed weight and pressure, and that it had a direct influence upon all atmospheric changes. From this period Meteorology began to assume the form of an independent science, and was studied not only for the sake of making new discoveries in the subtile and elastic fluid that surrounds the earth, but to reduce scientific facts to a practical utility for the benefit and happiness of man.

No portion of the earth's surface—for extent in square miles, for inexhaustibility o its soil, for its geographical location, for its easy intercommunication—is better adapted for the reduction of meteorological phenomena to a science than this. The pursuits of life seem to enter wholly into this department of Natural Physics, and upon nothing is the happiness and acquirement of wealth by the inhabitants of the vast region west of the Alleghany mountains, stretching off to the westward for hundreds of miles in one grand and magnificent valley, with its boundless prairies, its splendid and almost interminable wildernesses, its broad and majestic rivers, its mediterranean chain of lakes, whose surfaces are thickly dotted with commercial life, than a correct reduction, as far as possible, of meteorological phenomena to positive facts, which can be used with a degree of certainty in the various vocations of life.

TABLE *showing the maximum and minimum height of the Barometer for each month of the year* 1865. *Also, the mean monthly height and range, the greatest and least daily variation.*

MONTHS.	Maximum Height.	Date.	Minimum Height.	Date.	Mean Height for the Month.	Range for Month.	Greatest Daily Variation.	Date.	Least Daily Variation.	Date.
January	29.81	30	28.9	17	29.307	.91	.36	7	.05	25
February	29.8	12	28.77	23	29.455	1.03	.62	26	.03	27
March	29.61	26	28.61	21	29.215	1.	.37	4	.04	5
April	29.72	8	28 86	12	29.388	.86	.38	11	.02	2
May	29.54	14	28.92	21	29.262	.62	.19	12	.01	20
June	29.42	6	28.99	26	29.177	.43	.18	10	.01	23
July	29.51	31	28.94	19	29·295	.67	.17	22	.01	5
August	29.49	25	29.1	10	29 328	.39	.19	10	.01	14
September	29 52	25	28.99	8	29.341	.52	.16	8	.01	19
October	29.57	31	28.68	10	29.257	.80	.24	15	.02	24
November	29.83	10	28.75	30	29.341	1.08	.14	5	.01	18
December	29.82	22	28.88	1	29.335	.94	.44	7	.03	3
1865.	29.83		28.61		29.35	.715	.62		.01	

TABLE *showing the annual maximum, minimum and mean Barometer. Also, the range, greatest and least variation for each year as noted in the table.*

						.01
1865	29.83	28.61	29.35	.715	.62	.00
1864	29.85	28.58	29.236	.75	.47	00
1863	29.81	28.47	29.287	.88	.75	.00
1862	29.83	28.77	29.294	.72	.57	.00
1861	29.9	28.88	29.35	.63	.66	.00
1860	29.87	28.94	29.33	.68	.61	.00

Mean Barometer for 6 years, 29.307

TABLE *showing the maximum, minimum, mean range, greatest and least daily variation of the Thermometer for each month of the year* 1865. *Also, the mean temperature of the warmest and coldest day in each month, with date of the same.*

MONTHS.	Maximum Height.	Date.	Minimum Height.	Date.	Mean Temperature of the Month.	Monthly Range.	Greatest Daily Varia'n.	Date.	Least Daily Variation.	Date.	Mean Temperature of the Warmest Day.	Date.	Mean Temperature of the Coldest Day.	Date.
January	46	5	—1	11	23.46	47.	29	11	1	26	39.	5	5.66	26
February	50	22	4	13	29 128	46.	21	14	1	7	45.	22	13.	12
March	72	20	8	10	40.18	64.	22	14	0	1	58.	15	17.	10
April	72	20	29	8	49.352	43.	34	20	2	28	63.33	26	33.66	8
May	86	16	39	11	59.654	47.	21	31	3	24	71.66	31	43.33	11
June	93	6	54	26	73.333	39.	16	15	6	21	82.66	6	64.33	27
July	94	6	55	16	69.341	39.	20	6	2	16	82.33	6	56.	16
August	90	3	53	25	68.845	37.	23	25	8	4	80.33	3	58.33	22
September	90	4	46	19	70.185	44.	20	4	3	7	79.66	10	59.33	30
October	79	9	32	30	50.179	47.	27	9	1	27	65.	9	38.	28
November	67	16	26	28	41.096	41.	27	9	3	5	57.33	16	33.	5
December	51	11	1	23	29.921	50.	23	23	4	24	49.	4	7.66	15
1865	94		—1		50.389	47.	34		0		82.66		5.66	
1864	98		—15		49.987	49.9	37		0		87.33		11.66	
1863	95		6		51.069	48.58	28		0		85.33		16.33	
1862	97		—2		51.316	45.25	35		1		87.		16.33	
1861	96		—4		50.368	46.66	30		0		87.		9.66	
1860	94		10		49.343	44.13	41		2		83.		2.66	

Mean temperature for 6 years.................................... 50.412.
Mean temperature of warmest days for 6 years.................... 95.666.
Mean temperature of coldest days for 6 years.................... —1.

TABLE *showing the mean temperatuve of each month of the years* **1860, 1861,** 1862, 1863, 1864 *and* 1865. *Also, the mean of each month for six years.*

MONTHS.	1860.	1861.	1862.	1863.	1864.	1865.	Monthly Mean for 6 years.
January	28.87	25.55	27.09	34.104	27.254	23.46	27.721
February	30.56	33.	27.317	31.166	31.829	29.128	30.5
March	42.56	35.88	34.835	35.244	35.717	40.18	37.402
April	48.37	49.43	49.35	48.615	46.119	49.352	48.539
May	63.96	55.01	60.147	63.06	63.19	59.654	60.836
June	64.18	69 48	66.186	68.275	70.4	73.333	68.642
July	72.	70.26	79.9	74.507	75.09	69.341	73.516
August	70.21	71.48	74.17	72 95	71.103	68.845	71.269
September	59.16	62.9	66.064	61.651	61.519	70.185	63.579
October	50.87	53.38	53.824	44.878	48.	50.179	50.188
November	37.33	39.91	40.785	44.163	40.641	41.096	40 654
December	24.05	38.14	36.125	34.223	27.641	29.921	31.683
Mean	49.343	50.368	51.316	51.069	49.987	50.389	50.412

Mean temperature for six years, 50.412.

TABLE *showing the mean temperature of the seasons of* 1860, 1861, 1862, 1863, 1864 *and* 1865. *Also, the mean of each season for six years.*

SEASONS.	1860.	1861.	1862.	1863.	1864.	1865.	Mean for six years.
Spring	51.63	46.77	47.977	48.973	48.008	47.728	48.514
Summer	68.79	70.4	73.418	71.91	72.164	70.506	71.198
Autumn	49.12	52.06	53.557	50.23	50.052	53.82	51.456
*Winter	29.765	25.53	30.849	30.43	31.106	26.743	29.289

* Two months—January and February.

TABLE *showing the amount of rain and melted snow in inches, the depth of snow which fell during each month of the consecutive years mentioned. Also, the mean of the same for the corresponding years.*

MONTHS.	MELTED SNOW AND RAIN IN INCHES.					
	1861.	1862.	1863.	1864.	1865.	Mean.
January	2.125	3.875	2.875	.375	.75	2.
February	1.375	2 875	3.562	.9375	1.6875	2.2874
March	5.5	5.562	2.4375	1.9375	1.75	3.4775
April	5.75	4.437	1.875	4.75	3 125	3.9854
May	3.677	6.	2.4375	2.1875	2.25	3.3144
June	3.375	3.562	2.5	3.5	3.625	3.3124
July	5.125	2.875	3.437	3.25	6.062	4.1696
August	3.363	3.375	2.213	4.211	3.75	3.1825
September	2.562	2.375	1.625	7.006	10.1875	4.7511
October	2.312	2.25	3.125	1.6875	2.25	2.5249
November	3.125	2.5	3 75	5.8125	.3125	3.1
December	1.375	4.312	3.	1.5	3.5625	2.7499
Total	39.664	43 998	32.837	37.1545	39.312	38.5951

MONTHS.	SNOW IN INCHES.					
	1861.	1862.	1863.	1864.	1865.	Mean.
January	13.5	19.25	11.75	12 5	7.5	12.9
February	2.062	21.	34.	3.25	10.75	14.2122
March	9.	8.75	13.25	7.75	4.75	8.7
April	5.	4.	5.	5.	2.25	4.25
May	....	....	....	....	....	....
June	....	....	....	....	....	....
July	....	....	....	....	....	....
August	....	....	....	....	....	....
September	....	....	....	....	....	....
October	....	.75	.063	.125	....	.1876
November	7.	3.25	.75	6.5	....	3.5
December	5.25	6.	2.	13.	3.375	5.925
Total	41.37	63.	66.813	48.125	28.625	49.5866

TABLE *showing the direction from which the wind blew, number of clear, variable and cloudy days, number of days in which it rained and snowed during each month of the year* 1865. *Also the same for the years* 1864, 1863, 1862, 1861 *and* 1860.

MONTHS.	S. W. and W.	N. W. and N.	N. E. and E.	S. E. and S.	No. of Clear Days.	No. of Cloudy Days.	No. of Variable Days.	No. of Days in which it Rained.	No of days in which it Snowed.	Prevailing Winds.
January	67	14	6	6	2	17	12	3	5	S. W. and Westerly.
February	35	17	26	6	4	16	8	4	7	Westerly and N. Easterly.
March	45	15	27	6	4	16	11	9	5	“ “
April	59	12	17	2	8	8	14	10	3	“ “
May	30	30	27	6	8	8	15	10	..	“ “
June	66	11	12	1	6	5	19	12	..	S. W. and Westerly.
July	41	23	28	1	7	8	16	16	..	Westerly and N. Easterly.
August	46	24	21	2	5	4	22	12	..	S. W. and Westerly.
September	51	10	24	5	3	6	21	14	..	S. W. and N. Easterly.
October	49	26	17	1	6	8	17	9	..	S. W. and Westerly.
November	46	26	12	6	7	9	14	4	..	Westerly.
December	61	12	3	17	3	12	16	5	5	Southwesterly.
Years.										
1865	596	220	220	59	63	117	185	108	25	Westerly.
1864	608	204	229	57	55	149	162	98	35	“
1863	482	230	300	81	68	157	140	92	35	“
1862	520	205	282	88	80	142	143	103	46	“
1861	580	192	218	105	70	110	185	51	43	“
1860	501	217	229	148	127	161	78	100	34	“

REMARKS FOR THE YEAR.

January.—Weather usual for the month.

February 11.—Hazy during the P. M.; moon had the appearance of wading through a bank of snow; atmospherical appearance of the horizon was ominous and threatening, and during the night there was a peculiar squall of snow and wind; it fell like an avalanche, in one almost compact sheet, dark, blinding and suffocating, lasting only for a few minutes, when all was calm and clear.

February 15.—Northeast storm of snow.
“ 22.—Rain.
“ 23.—Muddy; ice on the river getting unsafe to cross upon.
“ 25.—A severe rain storm, with a rapid fall of the barometer.
March 8.—Ice moved out of the river.
“ 12.—Ferry-boat made her first trip.
“ 14.—Blue birds made their appearance.
“ 15.—Robins seen first for the season.
“ 28.—Soft maple trees in blossom.
April 4.—Swallows made their appearance.
“ 21.—Early peach and apricot trees in bloom.
“ 26 —Early cherry and plum trees in blossom.
May 3.—Apple, pear and all fruit trees in full bloom.
“ 12.—Frost in morning; tender vegetables frosted in many places.

June 1.—Early cherries ripe, thirty-six days from the blossom.

July 10.—Severe northeaster; rained all day.

" 15 and 16.—Rained continuously for 36 hours; most severe storm of the season.

" 30 and 31.—Only pleasant days of the month; grain and hay injured very much by the wet weather.

August 31.—A most severe shower occurred at 10½ P. M. that has visited this locality for many years. The very elements of a furious and terrible storm seemed to be at war with each other; rain poured in torrents; lightnings flashed continuously; an unceasing glimmering of the electric fluid lighted up the horizon; the wind, let loose from all restraint, dashed and lashed the falling waters to a foam; distant, hoarse and deep muttering thunder made bass music for the storm.

September.—Very warm, and a great excess of rain compared with corresponding months of other years.

October 1.—Frost; first of the autumn.

" 19.—Eclipse of the sun in A. M., dark and cloudy during the time; a gale of wind in P. M.

October 28.—Slight snow squalls.

November.—A very pleasant month; but little rain.

December 14.—River frozen over for the first time of the season.

" 15.—Skating on the canal.

" 20.—Snow in P. M.; a northeaster; the western border of the storm only reaching this vicinity; it was three days in forming, and was one of those oblong storms in this region that frequently occur in the winter and spring seasons.

The yearly meteorological phenomena, as they regard temperature, amount of rain fallen, and barometrical pressure, were the average of other years; but the distribution of rain and warm weather was very unusual. July and August were very cold; September very warm—so much so as to be exceptional to the general laws of temperature for the months. They were very rainy—September having a greater amount of precipitation than any corresponding month of which we have record.

The result of this unfavorable weather had a disastrous effect upon the agricultural communities in securing the hay and wheat crops; much of it was damaged, and but a very little hay was secured without injury. The fruit and summer crops were abundant and excellent in quality, and, upon the whole, the farmer was well repaid for his toil. October and November were very pleasant, and compensated for the unpleasant weather that preceded them for some three or four months. The Indian summer was much prolonged, and week after week the sun rose from his slumbers with his golden face, and traveled through the hazy, mellow atmosphere, shorn of his fiercest rays, sinking at night upon his western couch amid the glories of a thousand splendors, and even stern Winter allowed the genial embraces of Summer, like Autumn, to encroach upon his season until almost the "merry Christmas Bells" admonished him that it was high time that he assumed his sovereign sway and issued mandates from his frigid realm; even then his freezing, blustering way was tempered with mildness, and the Old Year took his departure, bearing but few traces of Winter's mark.

SANITARY CLIMATOLOGY AND ITS RELATIONS.

Humidity, heat and cold are the sources from which are produced most of the diseases lying within the geographical limits of the northwestern States. From what observations have been made, the sanitary division of diseases indigenous to the above region might, with propriety, be classified as follows:

1. Malarious and non-inflammatory diseases, with their associated epidemics, reaching to the 44th° or 45th° of north latitude, with the summer isothermal of 60°.
2. Pulmonary and inflammatory diseases with their associated epidemics, extending southward to the 30th° of north latitude, and winter isothermal of 50°.

All diseases ranging under these classifications, in all degrees of violence, are observed each year by physicians who are called upon to treat them, and who find that they have an intimate physical relation with the seasons, as the isothermal line moves from the south to the north in the spring and early summer, and as it recedes to the south again in the autumn and winter.

Beginning near the middle of June until the middle of October, all diseases appear to be more or less of a malarious character, and their violence attends a high atmospherical temperature and humidity; and from that time, or about the first of December, until the following April or May, pulmonary and inflammatory diseases principally exist, on account of the low temperature and moisture of the atmosphere. This phenomena in the movement of the isothermal upon diseases is a constant attendant in our sanitary climatology, and is the physical law which seems to govern diseases that are subject to climatic influences.

Perhaps no subject opens itself for investigation to the intelligent physician a more pleasant study than this of the Geographical Limitation of Disease. Like the studies of natural history, the foundation upon which rests the beautiful structure of the medical art, it each day presents something new and interesting within the thought and observation of its most humble student, and could each one take and reduce sanitary observations to a system, it would be a source of great gratification to himself and his record of disease and mortality, when compared with others, would be one of the links needed in the statistics of a sanitary climatology.

Meteorological Register for 1865; *kept at Cleveland, Ohio, by G. A. Hyde, Latitude* 41° 30′, *Longitude* 81° 42′; *Height above the Sea* 643 *feet; Monthly mean from three daily observations.*

ANEROID BAROMETER—OBSERVATIONS REDUCED TO THE FREEZING POINT.

MONTHS.	7 A. M.	2 P. M.	9 P. M.	Mont'ly Mean.	Maximum.	Minimum.
	Inches.	Inches.	Inches.	Inches	Inches.	Inches.
January	29.240	29.226	29.252	29.239	29.730	28.830
February	29.274	29.282	29.278	29.278	29.710	28.770
March	29.183	29.165	29.163	29.170	29.530	28.590
April	29.235	29.231	29.235	29.234	29.620	28.820
May	29.175	29.161	29.169	29.168	29.500	28.850
June	29.258	29.237	29.231	29.242	29.380	28.940
July	29.243	29.236	29.229	29.236	29.470	28.880
August	29.303	29.297	29.292	29.297	29.460	29.020
September	29.317	29.293	29.304	29.304	29.490	29.020
October	29.231	29.216	29.226	29.224	29.550	28.650
November	29.299	29.263	29.273	29.279	29.730	28.640
December	29.269	29.272	29.276	29.272	29.790	28.590
Mean for—						
1865	29.252	29.240	29.244	29.245	29.790	28.590
1864	29.199	29.188	29.206	29.197	29.790	28.550
1863	29.287	29.271	29.285	29.281	29.820	28.520
1862	29.275	29.260	29.274	29.270	29.840	28.660
1861	29.274	29.259	29.270	29.268	29.810	28.670
1860	29.289	29.283	29.290	29.287	29.850	28.620
1859*	29.324	29.313	29.319	29.319	29.840	28.480

* May 17th to 27th, inclusive, omitted.

TEMPERATURE.

MONTHS.	7 A. M.	2 P. M.	9 P. M.	Mont'ly Mean.	Maxi-mum.	Mini-mum.
	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.
January	20.26	26.26	23 16	23.23	43	3
February	26.39	31.45	29.32	29.05	50	0-5
March	37 92	45.10	41.82	41.62	74	13
April	46.93	55.10	48.87	50.30	79	27
May	55.82	62.64	55.87	58.11	86	40
June	71.38	80.27	69.18	73.61	91	54
July	66.21	76.56	66.76	69.84	92	50
August	66.72	76.74	64.04	69.17	90	47
September	66.40	77.80	64.97	69.72	90	49
October	47.51	58.48	47 66	51.22	77	33
November	36.03	47.98	39.58	41.19	70	16
December	30.23	37.29	30.74	32.75	61	3
Mean for—						
1865	47.65	56 31	48.50	50.82	92	0-5
1864	47.23	54.22	50.30	50.58	92	0-8
1863	47.43	54.65	50.99	51.02	92	7
1862*	47.67	55.07	50.36	51.03	92	9½
1861	47.26	55.78	50.14	51.00	90	0-8
1860	46.50	54.96	49.03	50.13	88	0-10
1859†	45.87	54.83	48.75	49.82	93	0-8
1858	44.17	55.32	47.75	50.08	92	0-8½
1857	43.29	53.08	45.68	47.32	91	0-13
1856	41.88	53.24	43.81	46.31	94	0-17½

* March 5th to 8th, inclusive, omitted. † May 17th to 27th, inclusive, omitted.

RAIN AND SNOW.

MONTHS.	Snow.	Rain and melted snow
January	13.1 inches.	1.77 inches.
February	8.6 "	1.46 "
March	7.1 "	2.62 "
April	0.4 "	2.84 "
May		2.27 "
June		3.57 "
July		3 45 "
August		1.36 "
September		4.82 "
October		2 75 "
November	0.1 "	0 83 "
December	2.2 "	3.71 "
Total for—		
1865	31.5 "	31.48 "
1864	49.0 "	32.02 "
1863	67.7 "	30.76 "
1862	44.6 "	36.99 "
1861	28.8 "	32.10 "
1860	43.1 "	35.74 "
1859*	45.9 "	38.66 "
1858	48.7 "	44.14 "
1857	54.7 "	39.75 "
1856	45.9 "	25.28 "

* The fall of rain from May 17th to 28th, inclusive, estimated at 0.75 inch.

WINDS.

The relative value of each course of wind for each month is represented in hundredths and for each year in twelve hundredths.

MONTHS.	N.	NE.	E.	S.E.	S.	SW.	W.	NW	Prevailing wind.
January	15	10	1	11	24	11	16	12	Southerly.
February	12	20	4	13	15	5	25	6	W. & NE.
March	2	19	2	13	29	4	26	5	Southerly.
April	10	8	2	19	28	10	18	5	Southerly.
May	13	31	0	12	26	4	11	3	NE. & S.
June	9	6	1	14	43	7	14	6	S.
July	10	18	8	10	30	7	11	6	S.
August	26	13	2	19	28	5	7	0	S. & N.
September	3	18	1	25	34	12	3	4	Southerly.
October	15	13	0	16	21	10	13	12	Southerly.
November	4	11	7	13	28	6	11	20	Southerly.
December	6	2	2	25	29	14	21	1	Southerly.
For—									
1865	125	169	30	190	335	95	176	80	Southerly.
1864	109	113	38	210	240	184	205	181	Southerly.
1863	111	157	48	241	267	115	165	96	Southerly.
1862*	116	159	54	164	294	112	165	127	Southerly.
1861	129	113	30	172	328	164	153	111	Southerly.
1860	136	128	40	143	352	117	147	137	Southerly.
1859†	157	131	39	194	298	126	165	90	Southerly.
1858‡	104	80	36	180	215	126	129	130	Southerly.
1857	140	77	32	157	282	159	176	177	Southerly.
1856	167	61	20	149	307	158	162	166	Southerly.

* February 17th to March 8th, inclusive, omitted. † May 17th to 27th, inclusive, omitted.
‡ May and June omitted.

The mean height of the barometer for seven years, including 1865, is 29.267 inches.
The mean temperature for ten years, including 1865, is 49.82 degrees.
The average fall of snow for same time is 46 inches.
The average fall of rain and melted snow for the same time is 34.69 inches, and the prevailing wind southerly.

RESULTS OF METEOROLOGICAL OBSERVATIONS.

Made for the URBANA UNIVERSITY, *from* 1852 *to* 1864 *inclusive.*

BY MILO G. WILLIAMS.

EXPLANATIONS.

The observations and records have been made in accordance with plans and forms adopted by the Smithsonian Institution. The hours of observation are 7 A. M., 2 P. M. and 9 P. M.

Barometer.—This instrument is reduced to the height of 32° Fahrenheit, and the mean height is obtained from the three reduced daily observations.

Thermometer.—An observation is made at sunrise, which is usually the minimum for the day; the mean minimum is the average of the sunrise observations, but the other means are the averages of the three regular observations.

Clouds.—The degree of cloudiness is indicated by numbers, the scale being from 10 to 0; 10 being entire cloudiness, 5 half cloudiness, and 0 entire clearness, and intermediate numbers in proportion.

The velocity of clouds is given by the same scale, 10 to 0; 10 indicating the most rapid motion, and 0 apparent rest.

course of clouds is given to 8 points of the compass; and the number of days of each month from which they move is entered in the proper column.

Wind.—The point from which the wind comes is noted, and the general course for each day is given. The scale 0 to 10 is used to show the force of the wind; 0 indicates calm, 1 a very light breeze, 2 a gentle breeze, 3 a fresh breeze, 4 a strong wind, 5 a high wind, 6 a gale, 7 a strong gale, 8 a violent gale, 9 a hurricane, and 10 most violent hurricane. The average for each month is obtained from the daily observations.

Water.—The quantity of snow is given in inches; and the whole quantity of water (which includes the snow melted) is given in the same manner. The number of days on which there was rain or snow, and the number of thunder storms for each month, are entered in the same table.

Mean force of the Wind for 7 *A. M.*, 2 *P. M. and* 9 *P. M., from* 1852 *to* 1864 *inclusive.*

YEARS.	7 A. M.	2 P. M.	9 P. M.	Annual mean.
1852	1.47	1.85	.82	1.38
1853	1.46	2.61	1.02	1.70
1854	1.45	2.95	1.22	1.87
1855	1.82	3.38	1.67	2.30
1856	1.70	3.53	1.35	2.19
1857	1.57	3.10	1.32	2.00
1858	1.66	3.01	1.24	1.97
1859	1.72	3.40	1.59	2.24
1860	1.89	3.44	1.66	2.33
1861	1.39	2.62	1.47	1.83
1862	1.53	2.78	1.18	1.83
1863	1.32	2.48	1.11	1.64
1864	1.65	2.95	1.37	1.99
Means	1.59	2.93	1.31	1.94

Quantity of Water for the four seasons, for 13 *years, at Urbana, Ohio.*

YEARS.	Winter months.	Spring months.	Summer months.	Autumn months.	Quantity for the year.
1852	17.55	15.09	10.94	15.26	58.84
1853	7.65	10.01	17.32	10.22	45.20
1854	8.66	17.18	6.46	9.05	41.35
1855	9.49	12.68	18.18	17.12	57.47
1856	5.94	6.83	9.49	8.61	30.87
1857	6.90	10.20	11.91	10.76	39.77
1858	8.31	12.32	13.22	7.14	40.99
1859	10.01	10.02	7.18	9.30	36.53
1860	7.07	8.13	13.51	7.01	35.72
1861	4.02	11.25	11.17	9.91	36.35
1862	9.80	13.63	9.55	4.81	37.79
1863	14.00	7.30	5.07	9.76	36.56
1864	4.77	8.34	10.02	9.06	32.19
Means	8.78	11.00	11.08	9.85	40.74

Time of the return of Birds, Frogs, &c., and the flowering of Plants—Urbana, Ohio.

	1854.	1855.	1856.	1858.	1859.	1860.	1861.	1862.	1863.	1864.	1865.
Blue Bird..................................	....	....	March 6	March 13	Febr'y 19	March 26	Febr'y 22	Feb'ry 13	March 6	Febr'y 29	Febr'y 24
Meadow Lark..............................	....	....	....	....	March 1	" 1	" 27	March 12	" 28	" 29	" 24
Robin	....	....	March 21	March 13	Febr'y 25	Febr'y 22	" 27	Febr'y 27	Febr'y 20	March 2	March 2
Martin......................................	April 6	April 13	April 12	....	....	April 7	....	April 14	April 13	April 16	April 6
Frogs..	March 9	" 14	" 2	March 16	March 7	March 6	March 2	....	" 10	" 21	March 20
Lightning Bugs...........................	....	....	....	....	....	May 6	....	May 17	June 10	June 17	May 16
Claytonia Virginica.....................	....	April 21	April 17	....	April 1	April 9	....	April 12	April 22	April 24	April 7
Peach..	April 19	" 25	....	April 15	" 11	" 12	....	" 22	" 23	....	" 17
Plum	April 21	" 25	April 30	" 17	" 14	" 10	....	" 26	" 27	....	" 17
Cherry.......................................	April 22	" 24	....	" 17	....	" 18	....	" 24	" 29	May 8	" 17
Pear..	April 21	" 26	May 2	May 19	April 19	" 18	....	May 1	May 1	" 7	" 20
Apple..	....	....	" 2	....	....	" 21	....	" 8	" 6	" 10	" 28
Flowering Almond......................	April 26	May 7	....	April 22	April 24	" 24	....	" 5	" 3	" 9	" 24
Lilack..	....	....	May 6	....	May 2	May 3	....	" 10	" 12	" 18	" 30
Native Plum...............................	....	....	....	....	April 30	April 22	....	" 4	" 10	" 10	" 24
Crab Apple................................	....	....	....	....	....	....	....	" 15	" 18	" 21	May 11
Cercis Canadensis......................	....	April 23	May 8	....	May 1	....	....	" 11	" 6	....	April 24
Gooseberry	....	....	April 25	Aprir 19	April 14	....	....	April 23	April 25	April 29	" 12
Currant	....	....	" 29	....	" 15	April 12	....	" 23	" 25	" 30	" 14
Strawberry.................................	....	....	" 30	April 28	" 26	" 22	....	May 8	May 10	May 8	" 23
Raspberry.................................	....	....	May 28	....	May 15	May 19	....	....	" 25	....	May 19
Black Locust	....	....	....	....	" 17	" 20	....	....	" 25	May 31	" 23
Polemonium Reptans..................	....	....	....	....	April 26	April 29	....	May 6	" 12	" 6	....

Thermometer—General Results—from 1852 *to* 1864 *inclusive—Urbana, Ohio*

YEAR.	Minimum.	Day.	Maximum.	Day.	Annual range.	Mean Minimum.	Mean Maximum.	Annual Mean.	Latest Spring frost.	First Autumnal frost.
1852..	20	Jan. 20	94	July 8............	114	43.96	58.75	51.36	June 11	Sept. 1
1853..	2	Feb. 9	92	June 20...........	93	45.16	58.68	51.67	May 20	Sept. 2
1854..	4	Jan. 23	98	September 5.....	102	45.60	61.32	53.36	May 11	Sept. 2
1855..	6	" 23	95	July 18 and 19...	101	42.66	59.56	50.29	June 14	Aug. 18
1856..	23	" 9	97	June 22	120	36.81	58.26	46.79	May 30	Aug. 31
1857..	19	" 23	93	August 14	112	38.18	57.84	48.53	May 21	Sept. 30
1858..	13	Feb. 23	97	June 23	110	43.56	60.47	51 48	May 22	Aug. 24
1859..	10	Dec. 8	96	July 12,13,14,17,18	106	42.19	59.89	51.20	June 5	Sept. 6
1860..	11	Jan. 1	93	June 27. Aug. 7..	104	43.00	58.92	50.95	May 3	Sept. 12
1861..	1	Feb. 8	....	....	......	42.35	59.30	50.64	May 2	Sept. 29
1862..	2	" 2	92	July 7. Sept. 11	94	43.60	59:47	51.12	June 8	Sept. 2
1863..	1	Jan. 1	93	Aug. 4 and 15....	92	44.78	58.43	51.48	April 13	Aug. 27
1864..	16	" 6	95	July 29 and 30...	118	42.49	57.24	49.48	April 21	Sept. 13
Means	....	....	....	....	......	42.64	59.09	50.64		

Barometer—Rain, Snow, &c.—General Results—from 1852 *to* 1864, *inclusive. Urbana, Ohio.*

YEAR.	Minimum.	Day.	Maximum.	Day.	Range.	Annual Mean.	No. days of rain &snow	Quantity of snow.	Quantity of rain and melted snow.	Thunder showers.	Aurora Borealis.
1852 ..	27.93	Mar. 24.......	29.47	Mar. 3.......	1.54	28.828	159	33.11	58.84	31	11
1853 ..	27.94	Jan. 23.......	29.21	Jan. 28.......	1.27	28.873	122	28.85	45.20	35	3
1854 ..	27.98	Nov. 24.......	29.35	Jan. 23.......	1.27	28.857	143	27.49	41.35	48	4
1855 ..	27.80	Dec. 9.......	29.43	Jan. 8.......	1.63	28.828	169	47.46	57.47	48	1
1856 ..	27.97	Dec. 14.......	29.25	Jan. 25.......	1.28	28.807	134	39.69	30.87	27	8
1857 ..	27.91	Nov. 19.......	[illegible] 50	Nov. 25 & 26..	1 59	28.857	158	32.59	39.77	33	0
1858 ..	28.28	Apr. 12.......	29.49	Jan. 8........	1.20	28.963	153	31.45	40.99	46	8
1859 ..	28.16	Mar. 18.......	29 53	Jan. 22.......	1.37	28.958	140	31.70	36.53	45	18
1860 ..	28.17	Feb. 18.......	29 47	Dec. 27.......	1.30	28.866	163	27.11	35.72	50	16
1861 ..	28.01	....	29.41	....	1.40	28.871	149	15.31	36.35	40	....
1862 ..	28 21	Mar. 15.......	29.43	Dec. 18.......	1.22	28.859	136	41.98	37.79	36	5
1863 ..	28.12	Dec. 31.......	29.40	Jan. 18.......	1 28	28.873	137	47.40	36.56	28	6
1864 ..	28.21	Nov.4 & Dec.21	29.40	Feb.18 & Dec.9	1.19	28.830	145	35.17	32.19	35	5
Means	28.05		29.41			28.867	147	33 80	40.74	39	7

Mean temperature for the several months of the year 1852 *to* 1864, *inclusive: Urbana, Ohio.*

Year.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
1852	19.94	31.33	42.04	48.98	63.22	68.28	74.81	71.65	62.70	58 60	38.70	36 04
1853	32.95	32.60	38.66	50.56	60.30	73.50	70.70	71.21	63.98	48.61	45.57	31.40
1854	29.46	35.62	43.77	50.96	62.84	70.85	77.53	74.35	70.00	55.27	38.78	30.85
1855	29.55	22.53	32.80	53.38	62.63	67.12	75.08	72.50	67.22	49.03	42.95	28.77
1856	14.39	19.32	27.34	52.52	58.61	71.73	75.05	66.66	62.10	53.35	38.28	21.93
1857	14 37	38.95	34.35	39.56	55.93	67.98	72.84	71.70	65.40	50.00	35.44	35.87
1858	36.45	22.70	38.73	49.30	59.00	73.40	73.39	71.83	64.99	55.50	35.36	37.08
1859	29.19	32.74	45.60	48.00	66.10	67.93	74.70	71.28	63.16	47.90	43.70	22.00
1860	29.11	30.61	42.14	51 62	66.23	69.77	72.73	71.68	60.90	53.50	36.90	26.23
1861	27.26	36.71	38.38	49.63	61.67	71.17	74.09	71.34	64.49	50.42	39.88	36.20
1862	29.03	28.06	37.66	50.93	61 28	66.70	73.35	72.45	66.80	54.21	39.41	33.54
1863	32.70	32.98	36.60	50.60	64 57	68.15	74.03	72.61	62.65	47.41	42.67	32.92
1864	25.11	30.30	35.73	46.84	62.60	70.25	74.52	72.56	63.12	48.48	41.09	27.71
Means	26.88	30.34	37.98	49.45	61.94	69.76	74.06	71.68	64.42	51.71	39.90	30.81

The mean temperature at Urbana, deduced from thirteen years' observations, is 50.64 degrees.

Mean degree of Cloudiness for 7 *A. M.,* 2 *P. M. and* 9 *P. M.,* 1852 *to* 1864, *Urbana, Ohio.*

Year.	7 A. M.	2 P. M.	9 P. M.	Annual mean.
1852..	5.68	6.19	4.82	5.57
1853..	5.50	6.10	4.25	5.30
1854..	5.10	5.30	4.06	4.82
1855..	6.10	6.04	4.88	5.67
1856..	5.14	5.30	3.88	4.77
1857..	5.80	6.34	4.66	5.60
1858..	5.96	6.23	4.77	5.65
1859..	5.87	6.25	4.75	5.62
1860..	6.21	6.25	4.68	5.71
1861..	5.66	6.08	4.34	5.36
1862..	5.76	5.76	4.62	5.38
1863..	5.96	6.09	4.86	5.64
1864..	5.80	6.02	4.73	5.52
Means	5.73	6.00	4.56	5.43

Mean velocity of Clouds for 7 *A. M.,* 2 *P. M. and* 9 *P. M.,* 1852 *to* 1864, *inclusive, Urbana, Ohio.*

Year.	7 A. M.	2 P. M.	9 P. M.	Annual mean.
1852..	3 17	3.18	3.13	3.16
1853..	3.78	3.44	3 39	3 53
1854..	3.53	3.58	3.33	3.48
1855..	3.91	3.88	3.82	3.87
1856..	3.46	3.40	3.08	3.31
1857..	3.71	3.56	3.61	3.63
1858..	3.43	3.16	3.08	3.22
1859..	3.39	3.23	3.44	3.35
1860..	3.63	3.71	3.71	3.68
1861..	3.25	3.40	3.08	3.24
1862..	3.17	3.17	3.10	3.16
1863..	3.00	2.76	2.71	2.82
1864..	3 23	3.02	3.16	3.14
Means	3.44	3.34	3.23	3.33

Course of Clouds—Urbana, Ohio.

Year.	N.	N. E.	E.	S. E.	S.	S. W.	W.	N. W.	Clear.
1852	11	11	13	8	28	47	168	49	31
1853	22	13	19	5	16	60	157	43	30
1854	14	15	9	0	22	68	146	41	50
1855	8	15	4	10	17	71	157	48	35
1856	15	9	10	4	13	60	166	51	38
1857	17	15	4	7	27	67	163	51	14
1858	17	14	9	9	27	66	142	60	21
1859	18	16	7	6	24	67	165	36	26
1860	15	12	13	10	15	52	172	55	22
1861	......	......	......	......	......	......	......	......	......
1862	23	23	17	5	20	63	136	41	37
1863	31	16	18	12	35	63	124	37	29
1864	20	17	11	12	26	52	163	43	22
Means	17.6	14.7	11.2	7.4	22.3	61.4	155.0	45.4	29.7

Course of Wind—Urbana, Ohio.

Year.	N.	N. E.	E.	S. E.	S.	S. W.	W.	N. W.	Calm.
1852	14	24	28	34	43	60	99	49	15
1853	37	36	16	11	45	73	80	51	16
1854	25	26	27	17	44	76	88	45	17
1855	11	12	9	41	59	91	79	44	9
1856	17	18	18	44	47	84	68	55	15
1857	11	23	18	36	62	75	73	46	20
1858	9	30	23	46	59	65	76	47	10
1859	18	29	13	49	74	69	76	31	6
1860	18	21	30	40	65	60	77	47	8
1861	......	......	......	......	......	......	......	......	......
1862	22	30	40	35	42	67	72	54	18
1863	32	19	21	31	65	70	57	46	28
1864	23	15	25	24	49	74	107	35	14
Means	19.7	23.6	22.3	34.0	54.8	72.0	79.3	45.8	13.4

Rain and snow reduced to water, measured in inches—Urbana, Ohio.

Year.	Jan'y.	Feb'y.	March.	April.	May.	June.	July,	August.	Sept	Oct.	Nov.	Dec.	Total.
1852	2.74	3,13	4.99	5.69	4.41	4.21	3.68	3.05	6.03	3.59	5.64	11.68	58.84
1853	1.79	4.01	2.53	4.42	3.06	4.72	4.16	8.44	4.16	2.49	3.67	1.75	45.20
1854	3.61	3.76	5.41	5 75	6.02	2.80	1 67	1.99	1.97	4.46	2.62	1.29	41.35
1855	3,97	1.66	3 40	2.56	6.72	10.78	6.17	1.23	8.76	3.18	5.18	3.86	57.47
1856	1.02	1.90	1 09	1 90	3.84	3 23	3.89	2.37	2.91	2.08	3.62	3.02	30.87
1857	1.16	3.20	1.85	1.94	6.41	3,05	4.23	4.63	1.84	3.97	5.65	2.64	39.77
1858	2.03	1.48	.96	3.86	7.50	5.26	3.60	4.36	1.97	1.78	3.39	4.80	40.99
1859	2.30	3.05	4.16	4.25	1.61	4.18	.80	2.20	3.35	1.26	4.69	4.66	36.53
1860	1.85	2.05	0.76	6.30	1.07	3.37	6.21	3.93	2,59	2.00	2 42	3.17	35.72
1861	1.97	1.62	2.95	3.95	4.35	4.19	3 69	3.29	3.42	2.88	2.83	1.21	36,35
1862	3.01	2.47	4.83	5.10	3.70	3.20	4.02	2.33	.60	1.13	3.08	4,32	37.79
1863	6.36	3.13	2 50	1.69	3.57	1.31	2.10	1.66	3.13	3.63	3.01	4.51	36.56
1864	1.89	.55	2 33	2.31	2.21	3.82	.84	5.47	3.71	1.89	3.53	3.64	32.19
Means	2.59	2.46	2.93	3.82	4.19	4.16	3·47	3·46	3.42	2.59	3.79	3.89	40.74

LIVE STOCK.

There can be no complete and successful system of agriculture which does not embrace rearing and keeping live stock. This fact was fully appreciated by the early settlers in Ohio.*

The more stock there is kept on the farm the greater will be the amount of manure produced, provided the stock is well kept;† and if the manure is properly appropriated, the more productive will the soil be, and at the same time be in better condition to work. The Ohio farmers very evidently have paid great attention to stock; not only to secure and breed such as were best adapted for the purposes intended to increase the numbers to the full amount required. We find that stock has not only positively increased in numbers, but has increased more rapidly than the population. The following table shows the number of inhabitants for every one hundred head of horses, cattle, sheep and hogs, from the periods at which enumerations were taken:

	Inhabitants to 100 horses.	Inhabitants to 100 cattle.	Inhabitants to 100 sheep.	Inhabitants to 100 swine.
1820	581	290	....	....
1830	541	262	....	....
1840	454	277	50.7	151
1850	385	179	51.9	118
1860	329	131	67.9	122
			39.6‡	171‡

The great relative increase in horses from 1820 to 1860 is strikingly manifest; for at the former period 581 inhabitants owned 100 horses, whereas at the latter period 329 inhabitants owned as many as 252 more inhabitants did in 1820. Since 1860 the population has been increasing, whilst horses have been decreasing in numbers, so that some years must elapse before the relative proportions of 1860 are again attained. But it is very probable that what we have lost in numbers is amply compensated in *quality*, for the war has undoubtedly introduced some much more valuable horses amongst us than those taken away.

The average number of horses in the State from 1858 to 1864 inclusive, was 705,135, or a little less than in 1860. Assuming that the population of 1860 was an average of that from 1858 to 1864, then there were 100 horses for every 331 inhabitants during that period; in which every inhabitant had an average investment of $15.64 according to the assessed value of the horses. During the same period the average number of cattle was 1,741,438, or about 38,000 head less than in 1860; this gives an average of 100 head of cattle for every 134 inhabitants, making an average investment of $8.27 to each inhabitant according to the assessed value.

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* See Ohio Agricultural Report for 1857, pages 300 to 306 inclusive, and Report for 1859, pages 453 to 459 inclusive.

† Experiments made in Germany indicate that 12 head of cattle well fed and housed produce more and better manure than 18 head of the same age and breed poorly kept and without shelter in winter.

‡ Estimation for 1865.

Hon. T. C. JONES, of Delaware, has kindly contributed the following paper on

CATTLE.

During the last four or five years wool-growing has been regarded as so remunerative, and the excitement in regard to the improvement in Spanish Merino sheep has been so great, that the raising of cattle and efforts to improve them, have been much neglected. It is a singular fact that in a State so well adapted to cattle-breeding, with a population so intelligent, a majority of our cattle should be still unimproved, or common stock. To a limited extent the Devon, Hereford and Ayrshire blood has been resorted to, with a view to improving our stock. At present, so far as I am aware, animals of these breeds are not much in demand. All these breeds are good for special purposes. The Devons and Herefords are excellent for beef and for work-cattle, but do not mature so early as the Shorthorns—nor are they so good for milk. The Ayrshires are believed to be surpassed by no other breed as milkers, but they are not equal to the other breeds above named as beef-producing animals; the opinion being generally entertained by all farmers who are attempting to improve their stock, that those cattle are the most profitable which combine the qualities of early maturity with good milk and beef producing qualities. It seems to be almost universally conceded that the Shorthorn or Durham blood should be resorted to in the improvement of our stock. It is not here intended to express any opinion as to whether this conclusion is a correct one or not, but simply to state the fact that at present, in Ohio, scarcely any other blood is used to improve our cattle. But the extent to which even this blood, which now prevails in all parts of Great Britian, has been quite limited in this State. Probably one-half the counties have nothing but common stock; and even in those counties where the greatest efforts at improvement have been made, one-half the animals are still "scrubs," produced for the most part not only without profit but as an absolute loss; while all who have experience in crossing with the superior blood, unite in the opinion, that with good keep, the thoroughbred or even the grade animals, are always bred with satisfactory profits.

Shorthorn cattle were introduced into the State at a very early day, in the Western Reserve and in the Scioto and Miami valleys.

In 1834 a company of spirited gentlemen, with adequate means, was formed in Southern Ohio, mostly residing in Ross, Pickaway, Franklin and Highland counties, to import cattle from Great Britain. The late Felix Renick, of Ross, one of the most intelligent gentlemen connected with agriculture in the State, and certainly surpassed by none in judgment as to the excellence of cattle, was selected as the agent to make the purchases, being instructed to use his own judgment and discretion as to the breed or breeds from which to make his selections. After examining all the breeds of Great Britain, his entire selection was of pure bred *Shorthorns.*

In the Report for the year 1857, an account of this importation was published, with the names of the animals, the farmers to whom they were sold, and the prices realized. As nearly all the herds of blooded cattle in the State contain more animals whose pedigrees are traced to cattle of this importation, it is proposed now as a matter of great interest, to publish the pedigrees of the bulls then imported, and those bred by the company before they made their sales. The pedigrees of the cows appear in the American Herd Books by the insertion of their descendants; but the pedigrees of the bulls have never been published except in the English Herd Books, a work that is inaccessible to most of our people. I add in regard to this importation, that it is everywhere conceded that no better was ever made into the United States. A reason for this, in addition to the intelligence of the agent and the adequate means provided, found in the fact that at that period there was so little demand for cattle in England, that the agent found but one single animal that the owner was not willing to put a price upon. This was stated to me by Josiah Renick, Esq., now of Pickaway county, who accompanied his uncle, the agent, in making the purchases.

There is much dispute as to the comparative merits of the English Shorthorns of that period and those of the present day. It is very certain that the best herds are now much more highly kept and pampered—have less exercise and are not milked so much. As a consequence they are finer in bone, and so long as the system of high feeding is continued, mature earlier, but it is a disputed question whether they are not less valuable as milkers and less hardy in constitution than their ancestors of 1834–6, the period of this importation.

It is believed that an examination of these pedigrees, embracing animals from the herds of all the leading breeders of that day, will show the absurdity of the pretence set up in some quarters, that the animals of particular families—there denominated the Dutchess or Princess, for example —are superior to all other pure bred Shorthorns. It has been said that Mr. Bates stated that he knew at an early day the superiority of the stock of R. Colling's white bull (which he afterwards got in Belvedere) to that of Mr. C. Colling's Favorite. The pedigrees of both these bulls will be found here recorded. The white bull will be found to be by Favorite, and his dam by Favorite, and further back it will be seen that the grandam of the white bull (151)* is by Hubback (319,) who was also the sire of the cow Houghton, who was the dam of Foljambe, (263) who was the sire of both the dam and the sire of Favorite.

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* These numbers refer to corresponding numbers in the English Herd Book.

Again, Mr. Bates' celebrated Duchess family was in its origin made up almost *exclusively* of the blood of this same bull Favorite (252.) Let us take the pedigree of his Duchess Second. She is by Kelton First, and he by Favorite, and his dam by Daisy Bull, who was also by Favorite, and great-grandam by Favorite. Duchess First was by Comet (155,) who was by Favorite—his dam by Favorite, and grandam by Foljambe, by Favorite as before stated. The dam of Duchess First was by Favorite, and her dam by Daisy Bull (186,) by Favorite!

There is no doubt but Mr. Bates stood high among the best breeders of England, but his pretence that he had *superior blood* has no foundation in fact.

PEDIGREES OF BULLS IMPORTED BY OHIO COMPANY IN 1834–5–6.

ÆMON, (1606.)

Roan, calved in 1833; bred by Mr. Raine Gainsford; got by Anti Radical (1642); dam Sally by Young Rockingham (2547); grandam by North Star (460); great-grandam by Denton (198,) by Ladrone (353,) by Henry (301.)

BARNBY, (1679.)

Roan, calved October 26, 1834; bred by Mr. Bower Retford; got by Jupiter (2169); dam Young Snowball, bred by Geo. Clark, by Prince Comet (1342); grandam by Albion (14,) great-grandam by Cinnamon (139,) great-great-grandam by Neswick.

This bull was imported by the agent of the Ohio Company, for William Renick, Sen., of Pickaway county.

BOUNCER, (3196.)

Roan, calved March 18, 1836; bred by Col. Cradock; got by Magnum Bonum (2243,) dam by Forester (1055,) grandam by Paul Jones (4662,) great-grandam by Frederick (1060.)

COMET HALLEY, (1855.)

Light roan, calved December, 1832; bred by Mr. J. C. Maynard; got by Matchem (2281,) dam by Frederick 1060,) grandam Nonsuch by Harold (291,) great-grandam Golden Pippin (bred by Mr. R. Colling) by North Star (459,) great-great-grandam Beauty, by Favorite (252,) ———, by Favorite (252,) ———, by Favorite (252,) ———, the dam of Punch (531,) by Broken Horn (95,) ———, bred by Mr. Best, of Mansfield.

DUKE OF LEEDS, (1938.)

Roan, calved September 21, 1835; bred by the Duke of Leeds; got by Norfolk (2377); dam Vinea, by Frederick (1060); grandam Varna (bred by Mr. Gee) by Sweet William (1493); great-grandam Valentine, (bred by Mr. Mitton) by Points (511); ———, by George (274); ———, by Budsworth (47); ———, by Budsworth (47.)

DUKE OF NORFOLK, (1939.)

Red and white, calved March 21, 1835; got by Norfolk (2377); dam Modesty, by Magnet (2241); grandam Prudence, by Don Juan (1923); great-grandam Modesty, by Sir Anthony (1435); great-great-grandam by Romulus (564); ———, by Snowball (1463); ———, Moss Rose, by Wellington (684); ———, by Wyngard; ———, by Simon (590); ———, by Simon (590.)

DUKE OF YORK, (1941.)

Red and white, calved July 18, 1833; bred by Mr. Whitaker; got by Frederick (1060); dam Bernice, by Charles (878); grandam Belvidere, by Frederick (1060); great-grandam Brighteyes, by Hermit (305); great-great-grandam Barmpton (bred by R. Colling) by Favorite (252); great-great-great-grandam Brighteyes, by Favorite (252); Old Brighteyes, by Favorite (252); ———, by Favorite (252); ———, by Punch (531); ———, by Hubback (319); ———, by Mr. Geo. Snowdon's bull (612); ———, by Mr. Waistoll's bull (669); ———, by Jas. Masterman's bull (422.)

EARL OF DARLINGTON, (1944).

Roan, calved April 4, 1833; bred by Mr. T. Bates; got by Belvidere (1706); dam Young Trinket, by Symmetry (643); grandam by Jupiter (345); great grandam Trinket, by Phenomenon (491); great-great grandam Tragedy, by Favorite (252); ———, by Punch (531); ———, descended from a cow that obtained the first premium at Darlington.

GOLDFINDER, (2066.)

Roan, calved in 1835; bred by Mr. John Lawson; got by Charles (1815); dam by Driver (1928); grandam by sire of son of Dash (2668); great-grandam by Richard (1376); great-great-grandam by Rufus (570); great-great-great-grandam by Pope (514), &c.

GOLIAH, (2068.)

Red, calved September 10, 1835; bred by Ohio Company; got by Earl of Darlington (1944); dam Calypso, by Bertram (1716); grandam Briseis, by Points (511); great grandam Brighteyes, by Dawmi's grey bull (193), a son of Cupid (177); ———, by Simon (590); ———, by Favorite; by Bolingbroke (86.)

GREENHOLME EXPERIMENT, (2075.)

Roan, calved February 14, 1833; bred by Mr. Whitaker; got by Camden (1776); dam Fidelle, by Adrian (720); grandam by Peacock Bull (2416); great-grandam by Young Warlaby (2812.)

HARRISON, (2093.)

Roan, calved October 13, 1834; bred by Mr. Whitaker; got by Ambo (1636); dam Young Alexina, (bred by Mr. R. Booth) by Pilot (496); grandam Alexina, by Warlaby (672); great-grandam Agnes, by Albion (14); great-great-grandam Brighteyes, by Same Bull (359); ——, by Shipton (587); ——, by a son of Surworrow (636); ——, by Mr. Booth's son of Twin Brother to Ben (88); ——, by Twin Brother to Ben (660.)

HAZELWOOD, (2097.)

Red roan, calved April 9, 1836; bred by Mr. W. F. Paley; got by Norfolk (2377); dam Princitta, by Prince William (1344); grandam Priscilla, by Corinthian Tom (921); great-grandam Princess, by Young Pilot (497); great-great grandam Venus, by Constellation (163); great-great-great-grandam Nancy, by Alfred (23); ——, by Windsor (698); ——, by Cupid (177.)

INDEPENDENCE, (2152.)

Roan, calved July 4, 1835; bred by Ohio Company; got by Earl of Darlington (1944); dam Matilda, by Imperial (2151); grandam White Face Lady, by Judson's Son of Warlaby (672); great-grandam ——, by Young Comet (905); ——, by a grandson of Favorite (252); ——, by Mr. Harrison's Son of Windsor (698); ——, by Layton (2190); ——, by Eclipse (1948).

JOHN BULL, (2161.)

Red and white, bred by Ohio Company; calved December 3, 1835; got by Earl of Darlington (1944); dam Gaudy, (imported by Ohio Company and bred by Mr. A. S. Maynard) by a son of Young Albion (15); grandam Patch, by Mr. Maynard's Red Bull (2287); great-grandam Old Patch, by Laird (1158), a Duchess bull, bred by Mr. Bates.

LOGAN, (2218.)

Roan, calved October 27, 1835; bred by Ohio Company; got by Duke of York (1941); dam Young Mary, by Jupiter (2170); grandam Mary, by Saladin (1417); great-grandam ——, by Mr. Meeks' bull; great-great-grandam bred by Mr. Holmes.

MATCHUM, (2283.)

Roan, calved April 26, 1831; bred by Mr. John Woodhouse; got by Imperial (2151); dam Red Lady, by Judson's Son of Warlaby (672); grandam by Young Comet (905); great grandam by Harrison's Son of Windsor (698); ——, by Layton (2190); ——, by Charge's Grey Bull (872); ——, by Eclipse (1948).

NIMROD, (2371.)

Roan, calved November 20, 1834; bred by Mr. Tempest, Broughton Hall; got by Norfolk (2377); dam Bell, by Bertram (178); grandam Belvidere, by Frederick (1060); great grandam Bright Eyes, by Hermit (305); great-great-grandam Barmpton, (bred by R. Colling) by Favorite (252); ———, by Favorite (252); ———, Old Bright Eyes, by Favorite (252); ———, by Favorite (252); ———, by Punch (531); ———, by Hubback (319); ———, by Snowden's Bull (612); ———, by Waistell's Bull (669); ———, by James Masterman's Bull (422).

PARAGON OF THE WEST, (4649.)

Roan, calved May 15, 1835; bred by Ohio Company; got by Duke of York (1941); dam Rose of Sharon, (bred by Mr. Bates) by Belvidere (1706); grandam Red Rose 5th, by 2d Hubback (1423); great grandam Red Rose 2d, by His Grace (311); great-great-grandam Red Rose, by Yarborough (705); great-great-great-grandam the American Cow (own sister to R. Colling's Red Rose) by Favorite (252); ———, by Punch (531); ———, by Foljambe (263); ———, by Hubback (319); ———, by James Brown's Red Bull (97).

PRINCE CHARLES, (2461.)

Roan, calved November 19, 1834; bred by Mr. Whitaker; got by Norfolk (2377); dam Spinster, (bred by Sir Charles Ibbetson) by 2d Meteor (2305); grandam Elvira, by Baronet (774); great grandam Emerald, by Meteor (432); great-great-grandam Lavinia, by Comet (155); ———, Lilly, (bred by Col. Trotter) by Mr. Colling's Son of Favorite; ———, by Mr. Colling's Son of Favorite; ———, by a bull of Mr. Chapmans, of Dunsdale; by a bull of Mr. Grimston's.

REFORMER, (2505.)

Roan, calved April 8, 1838; got by Waterloo (2816); dam by Blucher (796); grandam by Snowdrop (1468); great-grandam Phœnix, by Lancaster (360); great-great-grandam Wildair, (bred by R. Colling) by George (275); great-great-great-grandam Wildair, by Favorite (252); ———, by Ben (70); ———, by Hubback (319); ———, by Snowden's Bull (612); ———, by Sir James Pennyman's Bull (601).

RANTIPOLE, (2478.)

Red and white, calved August 15, 1832; bred by Mr. W. F. Paley; got by Buckingham (1755); dam Fanny, by Prince William (1344); grandam Fashion, by Corinthian Tom (921); great-grandam Faith, (bred by R. Booth) by Warlaby (672); great-great-grandam Phyllis, by Agamemnon (9); great-great-great-grandam by Chancellor (869).

SNOWDROP, (2654.)

White, calved May 12, 1835; bred by Ohio Company; got by Reformer (2505); dam Lilly of the Valley of the Tees, by Young Rockingham (2547); grandam by Wonder (2853); great-grandam by Denton (198); great-great-grandam by Ladrone (353); great-great-great-grandam by Henry (301).

WHITAKER, (2836.)

Roan, calved June 12, 1834; bred by Mr. Whitaker; got by Norfolk (2377); dam Mina, by Frederick (1060); grandam Wildair, by Meteor (431); great-grandam by Yarborough (705); great-great-grandam by Styford (629); ———, by a bull of Mr. Hollows.

WINDHAM, (2845.)

Red and white, calved May 14, 1835; bred by Earl Spencer; got by Firby (1040); dam Eloquence, by Mercury (2301); grandam No. 52, (bred by Mr. Mason) by Falstaff (1993); great-grandam by Dr. Syntax (220); ———, by Furrier (251).

YOUNG WATERLOO, (2817.)

Roan, calved May 22, 1833; bred by Mr. Bates; got by Belvidere (1706); dam Red Princess I., by Son of Orlando (2680); grandam by Orlando (471); great-grandam the last heifer calf of Princess, by Young Wynyard (2859); great-great-grandam Princess, by Favorite (252); great-great-great-grandam (bred by R. Colling) by Favorite (252); ———, by Hubback (319); ———, by Snowden's bull (612); ———, by Harrison's bull (669); ———, by Masterman's bull (422); ———, by Studley Bull (626).

As illustrating more fully the lineage of the animals whose pedigrees are given above, and as a matter of general interest to cattle breeders, the pedigrees of a few of the most distinguished bulls in the early history of Shorthorns, being the ancestors of the preceding, as they are indeed of nearly all the best thoroughbreds of our day, are here appended:

ALBION, (14.)

Light roan, calved April 18, 1810; bred by R. Colling; got by Comet (155); dam Beauty, by Maiske (417); grandam Miss Washington, by Washington (674).

AGAMEMNON, (9.)

Roan, calved December, 1814; bred by R. Booth; got by Albion (14); dam Brighteyes, by Same Bull (359); grandam by Shipton (587); ———, by Son of Surworrow (636); ———, by Son of Twin Brother to Ben (88); ———, by Twin Brother to Ben (660).

BEN, (70.)

Red, bred by R. Colling; got by Punch (531); dam by Foljambe (263); grandam by Hubback (319.)

BOLINGBROKE, (86.)

Red and white, calved Nov. 12, 1788; bred by R. Colling; got by Foljambe (263); dam Young Strawberry, (bred by Mr. Maynard) by Dalton Duke (188); grandam Lady Maynard, by R. Alcock's bull (19); ———, by Jacob Smith's bull (608); ———, by Jolley's bull (337).

CHARGE'S GREY OR ROAN BULL, (123.)

Bred by Mr. John Charge; got by Favorite (252); dam Fleshed Lady, by Young Bartle (778); grandam First Lady, by Bartle (778); great-grandam Old Simmon, descended from the Studley White Bull (627).

COLLING'S (ROBERT) WHITE BULL, (151.)

Got by Favorite (252); dam by Favorite (252); grandam by Hubback (319); great-grandam by Snowden's bull (612); ———, by Waistell's bull (669); ———, by Masterman's bull (422); ———, by Studley Bull (626).

COMET, (155.)

Red and white roan, calved 1804; bred by C. Colling; got by Favorite (252); dam by Favorite (252); grandam Phœnix, by Foljambe (263); great-grandam Favorite, or Lady Maynard, by R. Alcock's bull (19); ———, by Jacob Smith's bull; ———by Jolley's bull (337).

Comet died in 1815.

DAISY BULL, (186.)

Bred by C. Colling, got by Favorite, (252); dam by Punch, (531); grandam by Hubback, (319.)

DALTON DUKE, (188.)

Brindled,[*] red and white, bred by Mr. John Charge; got by Mr. U. Dobson's Bull (218); dam by the Studley Bull, (626.)

FAVORITE, (252.)

Light roan, calved 1793; bred by C. Colling; got by Bolingbroke (86); dam Phœnix, by Foljambe (263); grandam Lady Maynard, by Alcock's

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[*] The term "brindled," seems to have been used to designate a mixture of colors, or variagated colors, w [illegible] true meaning of the word; but with us, at this day, it is applied to a mixture of red and black colors. Dalton Duke was what we call a red and white roan.

Bull (19); great-grandam by Jacob Smith's Bull (608); great-great-grandam by Jolly's Bull (337.)

Favorite died in 1809.

FOLJAMBE, (263.)

White, with a few red spots, calved 1787; bred by C. Colling; got by Richard Baker's Bull (52); dam Houghton, (bred by Mr. Hull,) by Hubback (319); grandam by a bull, bought by Mr. Colling, of Mr. John Bamlet; great-grandam by Mr. Warstell's bull (669); ———, bred by Mr. Pickering.

HIS GRACE, (311.)

Red and white, calved in 1818; bred by Mr. Bates; got by Kelton 2d (348); dam Duchess 2d, by Kelton 1st (709); grandam Duchess 1st, by Comet (155); ———, by Favorite (252); ———, by Daisy Bull (186); ———, by Hubback (319); ———, by Jas. Brown's red bull (97.)

HUBBACK, (319.)

Yellow, red and white; bred by Mr. John Hunter, of Hurworth; got by Geo. Snowdon's bull (612); dam (bred by Mr. John Hunter,) by a bull of Mr. Banks', of Hunworth; grandam bought of Mr. Stephenson, of Kelton; Hubback, by George Snowden's bull (612); (dam from the stock of Sir James Pennyman, and these from the stock of Sir Wm. St. Quinton, of Scampston); Mr. Snowden's bull (612,) by Wm. Robson's bull (558), (bred by Mr. Waistell, of Great Burdon, near Darlington; Mr. Waistell's roan cow, Barforth); Robson's bull (558,) by James Masterman's bull (422,) bred by Mr. Walker, near Seyburn); Mr. Masterman's bull (422,) by the Studley bull (626), bred by Mr. Sharter, of Chilton.

PATRIOT, (486.)

Red roan, calved 1804; bred by Mr. Geo. Coats; got by Driffield (223); dam roan cow, by Houghton (294); grandam Milbank, by Mr. C. Holmes' bull (314.)

PETRARCH, (488.)

Red and white, calved 1808; bred by C. Colling; got by Comet (155); dam Venus, by Ben (70); grandam Phœnix, by Foljambe (263): great-grandam Favorite, by R. Alcock's bull (18); great-great-grandam by J. Smith's bull (608); great-great-great-grandam by Jolley's bull (337.)

MAJOR, (498.)

Red and white, calved 1813; bred by R. Colling; got by Wellington (680); dam by Phenomenon (491); grandam by Favorite (252); great-grandam by Favorite (252.)

MARSKE, (418.)

Roan, calved 1806; bred by R. Colling; got by Favorite (252); dam by Favorite (252); grandam by Favorite (252); great-grandam by Punch (531); great-great-grandam by Snowdon's bull (612); great-great-great-grandam by Masterman's bull (422.)

Marske died in 1821.

MORTON, (420.)

Bred by R. Colling; got by Favorite (252); dam by Punch (531.)

PUNCH, (531.)

Yellow red, bred by R. Colling, got by Broken Horn (95); dam by Broken Horn (95); grandam bred by Mr. George Best of Mansfield.

SURWORROW, (636.)

Bred by Mr. R. Colling; got by Styford (629); dam by Favorite (252); Styford by Favorite (252); dam by Punch (531); grandam by Foljambe (263); great-grandam by Hubback (319.)

WYNYARD, (703.)

Roan, calved 1806, bred by Sir H. V. Tempest; got by Phenomenon (491,) (bred by R. Colling); dam Princess, by Favorite (252); grandam by Favorite (252); great-grandam by Hubback (319); great-great-grandam by Snowdon's bull (612); ——, by Waistell's bull (469); ——, by Masterman's bull (422); ——, by Studley bull (726.)

YARBOROUGH, (705.)

Calved in 1801, bred by C. Colling; got by Cupid (177); dam by Favorite (252); grandam by Hubback (319.)

PHENOMENON, (491.)

Bred by R. Colling; got by Favorite (252); dam by Ben (70); grandam by Hubback (319); great-grandam by Snowdon's bull (412); great-great-grandam by Sir James Pennyman's bull (601.)

KELTON 1ST, (709.)

Bred by Mr. Bates; got by Favorite (252); dam by Daisy Bull (186); grandam by Favorite (252); great-grandam by Hubback (319); ——, by James Brown's red bull (97.)

HUBBACK 2D, (1423.)

Yellow, red and white, calved January 25, 1833; bred by Mr. Bates; got by The Earl (646); dam Red Rose 1st., by Yarborough (705); grandam the American Cow, (bred by R. Colling,) by Favorite (252); great-grandam by Punch (531); great-great-grandam by Foljambe (263); ——, by Hubback (319.)

BELVIDERE, (1706.)

Yellow roan, calved April 6, 1826; bred by Mr. Stephenson; got by Waterloo (2816); dam Angelina 2d, by Young Wynyard (2859); grandam Angelina, by Phenomenon (491); great-grandam Anna Boleyn, by Favorite (252); ——— Princess, by Favorite (252); ———, by Favorite (252); by Hubback (319); ———, by Snowdon's bull (612); ———, by Harrison's bull (669); ———, by Masterman's bull (422); ———, by Studley bull (626.)

BERTRAM, (1706.)

Red, calved May 12, 1828; bred by Mr. Whitaker; sold to Col. Powell, United States; got by Frederick (1060); dam Red Daisy, by Major (398); grandam by Windsor (698); great-grandam, old Daisy, (bred by C. Colling,) by Favorite (252); ———, by Punch (531); ———, by Hubback (319.)

COMET, (1854.)

Roan, calved in 1834; bred by Mr. Crofton Holywell, sold to Mr. Walter Dun, Lexington, Ky., United States; got by Emperor (1974); dam Gandy, by Monarch (2336); grandam Gandy, (bred by Mr. Shaptre,) by Cato (119); great-grandam by Whitworth (695); ———, bought of Mr. Mason, of Chilton.

The pedigrees of many Ohio short horns run back to this well-known bull, especially those bred by the Messrs. Dun, of Madison county, sons of the late Walter Dun, Esq., who imported Comet.

GLEDHOW, (2061.)

Light roan, calved August, 1831; bred by Mr. W. F. Paley Gledhow; got by Guy (2084); dam Polly, (bred by Mr. Charge,) by Eclipse (238); grandam Orbit, by Comet (153); great-grandam Splendor, by Comet (155); great-grandam Flecked Twin, by Major (397); great-great-grandam Red Simmon, by Favorite (253); Flecked Simmon, by Bartle (777); old Simmon descended from the Dudley white bull (627.)

WATERLOO, (2816.)

Yellow red, calved January, 1819; bred by Mr. Stephenson; got by Young Wynyard (2859); dam Angelina, by Phenomenon (491); grandam Anna Boleyn, by Favorite (252); ———, Princess, by Favorite (252); ———, (bred by R. Colling,) by Favorite (252); ———, by Hubback

(319); ———, by Snowdon's bull (612); ———, by Harriso
———, by Masterman's bull (422); ———, by the Studley bull (626.)
Waterloo was slaughtered in 1835.

Since the importations of 1834–5–6, large importations were made by the Scioto Company, in 1852, and by the Clinton, Madison and Union Companies, in 1853; all of superior animals, from the best herds in Great Britain. From these importations we have material enough for the improvement of the entire stock of the State within a very few years, by proper efforts in that direction by all the cattle breeders. And it is gratifying to observe that, at present, there seems to be a much more general interest manifested in such improvement, in all quarters, than at any previous period in our State's history.

Table showing the number and value of Cattle and Horses, from 1826 *to* 1866.

Year.	NO. AND VALUE OF HORSES.		NO. AND VALUE OF CATTLE.	
	Number.	Value.	Number.	Value.
1826	121,956	$4,878,240	253,544	$2,028,352
1830	173,191	7,103,840	356,728	2,853,824
1836	268,662	10,746,480	372,866	2,982,923
1840	334,112	13,364,460	546,384	4,375,504
1846	475,788	15,005,263	920,995	7,572,123
1848	492,509	16,856,841	983,822	9,729,929
1850	513,652	19,142,789	1,103,811	11,315,560
1851	517,396	20,337,442	1,116,145	11,382,950
1852	402,695	16,863,796	1,093,218	10,097,858
1853	615,085	27,844,619	1,646,195	17,646,810
1854	632,598	32,512,983	1,772,667	20,995,680
1855	624,746	31,415,004	1,791,189	18,902,006
1856	621,443	36,231,127	1,687,710	21,175,070
1857	630,659	39,409,890	1,655,415	21,662,223
1858	655,754	38,450,896	1,718,640	20,836,979
1859	692,503	38,698,178	1,802,872	21,416,572
1860	709,713	37,660,141	1,779,061	20,385,966
1861	738,427	36,211,355	1,837,938	19,734,330
1862	727,245	31,555,370	1,824,774	16,813,317
1863	716,825	34,198,314	1,734,788	17,859,544
1864	690,892	39,111,011	1,436,990	18,367,055
1865	678,456	42,448,531	1,244,327	21,981,404
1866	681,284	45,608,350	1,266,394	29,619,005

Table showing the number and value of Sheep and Swine, from 1846 *to* 1866.

Year.	NO. AND VALUE OF SHEEP.		NO. AND VALUE OF HOGS.	
	Number.	Value.	Number.	Value.
1846	3,141,946	$1,758,433	1,405,094	$2,238,876
1848	3,677,171	1,988,316	1,879,689	2,341,106
1850	3,812,707	1,984,983	1,672,173	1,902,029
1851	3,619,674	2,060,012	1,450,643	2,297,229
1852	3,059,796	3,581,385	1,299,746	3,081,981
1853	4,104,450	6,448,391	2,498,792	5,624,790
1854	4,845,189	8,031,854	2,887,015	5,558,487
1855	4,337,943	5,664,829	2,195,769	3,531,562
1856	3,513,680	5,009,410	1,851,124	5.268.008
1857	3,276,539	5,357,275	2,331,778	6,772,470
1858	3,377,840	4,755,215	2,541,904	6,191,373
1859	3,366,073	5,442,984	2,242,812	4,747,526
1860	3,442,856	5,879,357	1,918,225	5,121,286
1861	3,943,436	6,681,427	2,595,981	7,235,277
1862	4,448,227	7,839,041	2,765,900	4,614,355
1863	5,042,439	14,337,058	2,239,358	4,334,451
1864	5,560,318	17,502,657	1,646,506	4,994,234
1865	6,305,796	22,088,176	1,455,092	6,706,001
1866	6,966,028	20,081,944	1,799,417	8,866,256

MADISON COUNTY MONTHLY CATTLE SALES.

The following article has been kindly furnished by IRVING F. WILLIS, of London, Madison county:

For the Ohio Agricultural Report of 1858, the writer made up the best report possible (from the imperfect data then at hand) of the *first forty sales*, from their inauguration—first Tuesday of March, 1856—to July, 1859.

For the first few months, not knowing whether they would become a permanent institution or not at that time, the account of sales was but imperfectly made, only numbers and prices, by and to whom, being given.

Since July, 1859 a regular reporter has been employed, who not only gives buyers and sellers, but also kind and age of cattle, estimated weights and selling prices.

These reports are regularly furnished our county papers, and from these latter data the following "monthly sales" are made up. The weights (where not certainly known) are given on judgment of best stock men in attendance, and are found to be about correct.

The present reports are carefully calculated, and the yearly tables and comparisons are correctly made—no guess-work in the premises, as was *partly* the case in reports of Ohio for 1858; the only deviation from correctness is in making even numbers in the fractional per cents per hundred pounds, or rather, in making them even *tenths*,—not alwas true, but are within less than *one*-tenth of one cent, which is near enough for all practical uses.

These sales having become a "fixed thing" in the stock economy of our county, attract a large number of intelligent stock men thereto each month, having regular attendants from some *ten* counties adjoining and near us, as well as very frequently both buyers and sellers from Indiana, Illinois, the east, the Scioto valley, etc., etc.

Indeed we consider the prices (which are usually *cash* ones) the general ruling rates of this valley section. Here buyers and sellers meet; if buyers are not enabled to obtain their supplies at "sales," they purchase elsewhere, governing the purchase by prices paid at last sale.

Residents of other counties have made it their regular business to pick up small lots of different ages in their neighborhoods, to offer at our sales, following it up month after month, for years. Again, lots of cattle from Indiana, Illinois and Missouri are often brought here to sell, one of our largest dealers having sold several hundred head during the last few months, that were purchased in open market in St. Louis, and transported thence by rail, to supply the grazing savannahs of "Old Madison." Hence the importance of these sales in regulating measurably the ruling rates of neat stock in central Ohio.

By glancing at the *general* yearly review at close of these reports—in columns of three, two and one year olds, separately first, then following the *three* ages averaged together—it will be seen that the leading age—three years—has gradually advanced, both in dollars per head and cents per hundred pounds, since 1862, being *now* (or average of past six months) nearly three hundred per cent. higher than the average of 1862; and the two year olds' and yearlings' advance is almost as great, while the three ages together have advanced from $18 to near $51, and from $2.50 to $5.67 per hundred.

In oxen the advance is greater than in other cattle kind, and the improvement in quality more marked. But we are pleased to add another *fact*, partly explanatory of this great advance, and that is that the *average weight* is increasing, proving conclusively that we are not *retrograding* in improving the neat stock of our county; for instance, three years in 1862, averaged 10.31 lbs., and six months of 1866, 11.31 lbs. Two years *then*, 772, *now*, 854 lbs.; one year *then*, 586, *now*, 682 lbs., while together the advance is equally proportioned, coming up from 809 to 889.10 head. In oxen the advance is more marked, being in 1863 2,350, and in 1866 2,659 lbs., over 150 lbs. per ox, or 309 lbs. per pair heavier *now* than *then*.

Permit here a digression to state—lest any one may form erroneous impressions—that the sales here do not apply to *fat cattle*, it being considered injurious to these to drive and hold them out of grass all day. The three year olds and others are stock cattle, fit for grazing or feeding, and when fatted are either shipped by owner, or sold to regular shippers, going from pastures to railroad, thence east direct. Still the subject is agitated, and ere long we think that *fat cattle* will be disposed of at our "sales," and that a class of buyers—shippers—will here find their supplies, as well as the grazers or feeders.

But great as are the stated advantages of our "monthly sales," in furnishing buyers and sellers a market and supply, we would consider their history as but imperfectly written did we not review other reasons. Here most of the farmers of our county meet monthly, from force of habit and business other than stock buying, and have the time, and employ it in obtaining and imparting general information from and to each other. If "spring time," in buying a needed horse or two, obtaining their plows, seeing who has seed corn or oats, or spring wheat, or grass seed to sell, and at how much; if later, in seeing the wool buyers (for remember, we have *now* 150,000 head of sheep, and good ones, too, with somewhere near *three-fourths of a million* pounds of wool to market—placing us about *fourth* or *fifth* in numbers of the wool-producing counties of Ohio) finding out from his neighbors, and others in remoter sections, how much he or they ask or has obtained; sell, may-be, and take home the sacks, income tax returned, licenses applied for, or received and paid for.

But we will follow this line of reasoning no farther. The intelligent reader will easily supply other *whys* and reasons for meeting thus your brother agriculturists, for interchange of business and leisure.

Certainly reasons are numerous and important enough to induce the starting of "monthly cattle" or "stock sale days" in every grazing county in the State, and not only *this*, but the "Great West," and we might add,—the "Great East," comprising western New York, if no farther. But the starting is easily enough accomplished, as counties near us can testify, but the continuing seems to have been the more troublesome part of the undertaking with other sections.

Our sales were set on foot by less than a dozen stock men, but they were determined, and attended themselves; brought stock; were energetic in inducing others, until fairly set a-going; now it is considered a permanent fixture, and woe be to the party or parties venturesome enough to cry "down with the cattle sales." It would have but one effect, viz., induce a larger attendance afterward.

The reports following extend over *parts* of eight years, though comprise but just *seven* in months, starting at the forty-first and closing with June, 1866, the last number being the 124th sale.

Since their induction in 1856, the total amount of stock sales proper will not vary much from *one million dollars*, while the miscellaneous sales (now large, general and increasing) would probably reach half as much more.

Many cattle and much other stock are sold, often before reaching market, or after being withdrawn, or on the homeward road. Of these we have no account. Doubtless it would be safe to state that these outside disposals would fully equal, in price, the average of reported amounts.

In conclusion, we trust many other counties may inaugurate this enterprise, and continue it until, with ours, their reports may be numerous and valuable.

MADISON COUNTY CATTLE SALES.

41st Sale—July 5th, 1859.

CATTLE.

68 head, 3 years, 2 lots.
27....1000....$30.58.
41....1150.... 43.00.

Average, 1090 $38.04—3½ cts. per lb.
118 head, 2 years, 4 lots.
19....700....$16 87.
42....850.... 17.50.
33....750.... 15.62.
24....850.... 19.50.

Average, 800 $17.32—2 1-6 cts. per lb.
25 head, 1 year, 1 lot.
25....600....$12.50—2 4-10 cts. per lb.
211 head, above ages, average round—
869....$23.43—2 7-10 cts. per lb.

OXEN.

4 head, 2 yokes.
1 pair....1600....$45.00.
1 " ....2380.... 76.00.

Average,.... 1990 $60.50—3 cts. per lb.

MILCH COWS AND CALVES.

1 head....$26.50.
Total number of cattle sold, 216 head.
Amount of sale, $5,500.

42d Sale—August 2d, 1859.

CATTLE.

2 head, 3 years, 1 lot.
2 (heifers)....$22.00.
65 head, 2 years, 2 lots.
18....725....$14.50.
47....875.... 24 50.

Average, 834 $21.73—2 6-10 per lb.
6 head, 1 year, 1 lot.
6....600....$14.75—2½ cts. per lb.
73 head, above ages, average round—
813....$21.14—2 6-10 cts. per lb.

OXEN.

2 head, 1 yoke.
1 pair....2300....$70.00—3 cts. per lb.

MILCH COWS AND CALVES.

5 head.
1................$25 00.
1 (with twins)... 24.00.
1................ 29.00.
1................ 29.75.
1................ 24.75.

Average,.............$26.50.
Number of cattle reported, only 80 head.
Amount of sale, $1.700.

REMARKS.—Large attendance of persons, but no desire to purchase; cattle going down; several lots been sold in county at private sale, during past few days, at from 3 to 4½ cents per lb. Average this month but little over 2¼ cents.

43d *Sale—September 6th*, 1859.

CATTLE.

35 head, 3 years, 1 lot.
35 (3 & 4 yrs)..1150—$25.00—2⅛c. p. lb.
51 head, 2 years, 6 lots.
12.... 900....$19.50.
6.... 800.... 15.37.
13....——.... 11.00.
8....1025.... 28.50.
4....1050.... 30.12.
8.... 750.... 14.00.

Average,.. 900 $18.23—2c. per lb.
32 head, 1 year old, 7 lots.
5....660....$15.25.
4....550.... 10.00.
1....750.... 14.00.
6....650.... 16.00.
6....700.... 15.25.
9....450.... 9.00.
1....——.... 9.00.

Average, 600 $12.74—2⅛c. per lb.
118 head, above ages, average round—
891....$19—2⅛c. per lb.

OXEN.

4 head, 2 yokes.
1 pair....3200....$96.00.
1 " ....2700.... 90.50.

Average,..... 2850 $93.25—3 3-10c. p. lb.

MILCH COWS AND CALVES.

2 head.
1....1400....$39.50.
1....——.... 22.75.

Average, 1400 $31.12—2 2-10c. per lb.
Total number of cattle reported, 124 head.
Amount of sale, $2,500.

44th *Sale—October 3d*, 1859.

CATTLE.

77 head, 3 years, 2 lots.
11....1200....$27.25.
67....1150.... 31.62.

Average, 1172 $31.40—2 7-10c. per lb.
246 head, 2 years, 9 lots.
41............ 950....$21.75.
50............1100.... 27.75.
47............ 960.... 22.87.
38............1100.... 21.00.
3............ 800.... 18.00.
12............1100.... 25.50.
18 (30 days) .. 875.... 15.00.
13 (Ind.) ..... 925.... 20.00.
24(2 & 3)..... 800.... 12 25.

Average,........ 1000 $21.70—2 1-6c. per lb.

45 head, 1 year, 3 lots.
7....——....$12.00.
13....600.... 13.75.
25....725.... 17.25.

Average..630 $15.55—2½c. per lb.
368 head above ages, average round—
991....$23.00—2¼c. per lb.

CALVES.

14 head, 2 lots.
4....350....$8.50.
10....350.... 9.00.

Average.. 350 $8.85—2½c. per lb.

OXEN.

4 head, 2 yokes.
1 pair 3 yrs....——....$90 00,
1 " " ....2800....——

Average,.......... 2800 $90.00—3¼c.p.lb

MILCH COWS AND CALVES.

2 head, 3 lots.
1................$17.00.
1................ 18.00.

Average,............ $17.50

MULES.

29 head.
5 (colts)..............$20.75.
6 (1 yr)............. 50 00.
18 (2 yr.)............. 50.00.

Average, $46.00

HORSES.

15 head.
1..........................$80 00.
1.......................... 25.00.
1.......................... 22.00.
1.......................... 40.00.
1.......................... 76.00.
1.......................... 49.00.
1.......................... 80.00.
1.......................... 70.00.
1.......................... 50.00.
1 colt .... 35.00.
1 " .... 24.00.
2 colts.......................... 35.00.
1 colt .... 40.00.
1 " .... 80.00.

Average,..........................$49.33.
Total number of cattle sold, 388 head.
" " mules " 29 "
" " horses " 15 "
Amount of sale, $10,800.

45th *Sale—November 1st*, 1859.

CATTLE.

3 years—none.
96 head, 2 years, 8 lots.
3.......... 800....$16.75.
4.......... 900.... 19.00.
6 (heif) ... 855.... 15.00.
1.......... 700.... 10.00.

4........ 900....$24.75.
50........ 975.... 21.90.
17........1100.... 28.50.
11 (heif.) . 900.... 22.55.

Average,...... 967 $22.42—2¼c. per lb.
12 head, 1 year, 2 lots.
1....700....$10.00.
11....700.... 12.00.

Average, 700 $11.83—1 7-10c. per lb.
108 head, above ages, average round—
937....$21.25—2¼ cts. per lb.

FAT COWS.

2 head.
1150...........$24.00—2 1-10c. per lb.

MILCH COWS AND CALVES.

2 head.
1............$25.50.
1............ 30.25.

Average,........ $27.87—2¼ cts. per lb.

BULLS.

1 year.
1..........................$47.00

SHEEP.

175 head.
Stock sheep ....$1.47.

HORSES.

12 head.
1..........................$55.00.
1.......................... 85.00.
1.......................... 61.00.
1.......................... 55.00.
1.......................... 53.00.
1 mare .... 69.00.
1 " .... 40.00.
1 mare ....$81.00.
1 " .... 25.00.
1.......................... 65.00.
1 pony .... 57.00.
1 colt .... 55.00.

Average......................$58.25
Total number of cattle sold, 113 head.
" " sheep " 175 "
" " horses " 12 "
Amount of sale, $3.500.

REMARKS.—Scarcity of hay causes a drawback on price of cattle—prospective for winter—but a limited number in market.

46th Sale—December 6th, 1859.

CATTLE.

3 years—none in market.
79 head, 2 years, 2 lots.
19 (30 days) 860....$18.00.
60 (Ind.)...1010.... 26.75.

Average,...... 974 $24.65—2½c. per lb.
23 head, 1 year, 1 lot.
23..(30 d.)..700..$17.75—2 6-10c. per lb
102 head, above 2 ages, average round—
902..........$23.09—2 6-10c. per lb.

OXEN.

2 head, 1 yoke.
1 pair....2500....$90—3 6-10c. per. lb.

MILCH COWS AND CALVES.

1 head, $25.00.
Total number reported, 105 head.
Amount of sale, $2,500.

REMARKS.—Very disagreeable weather; but a small number of cattle; large attendance of persons, who come regularly from force of habit, to see their friends and pay taxes, etc.

RECAPITULATION—*Last six months of* 1859—*showing the number sold* (*as per report*) *of each age and kind; also, number of lots in which offered of* 3, 2, *and* 1 *year olds; and the total number of cattle of all ages, with the total number of stock of all kinds.*

MONTHS. (Last six, 1859.)	CATTLE.														OTHER STOCK.				
	3 years.	No. lots.	2 years.	No. lots.	1 year.	No. lots.	3, 2 & 1 yr. Totals.	No. lots.	Calves.	Oxen—head.	Fat cows.	Milch cows.	Bulls.	Total cattle all kinds.	Horses.	Mules.	Sheep.	Hogs.	Total stock, all kinds.
July	68	2	118	4	25	1	211	7	..	4	..	1	..	216	..	..	....	..	216
August	2	1	65	2	6	1	73	4	..	2	..	5	..	80	..	..	....	..	80
September	35	1	51	6	32	7	118	14	..	4	..	2	..	124	..	..	....	..	124
October	77	2	246	9	45	3	368	14	14	4	..	2	..	388	15	29	....	..	432
November	....	..	96	8	12	2	108	10	..	..	2	2	2	113	12	..	275	..	300
December	....	..	79	2	23	1	102	3	..	2	..	1	..	105	..	..	....	..	105
Total—six months	182	6	655	31	143	15	980	52	14	16	2	13	1	1026	27	29	175	..	1257
Average for month	45	..	109	..	24	..	163	..	..	..	..	..	..	171	..	..	....	..	209

Table—*Showing the average prices of the different ages of cattle, with average estimated weights (given by best judges, which are proven about correct), and the average price per* 100 *lbs., of all ages, separately; also average of* 1, 2 *and* 3 *year-old cattle together, for each of the last six* (6) *months of* 1859, *and total average for the six* (6) *months, of all kinds, with the addition of the averages of all other stock reported monthly, and total for six* (6) *months. Also amount of "cash sales" monthly, and total for the time.*

MONTHS. Last six of 1859.	CATTLE.											
	3 yrs. lbs.	3 yrs. Price.	3 yrs. cts.	2 yrs. lbs.	2 yrs. Price.	2 yrs. cts.	1 yr. lbs.	1 yr. Price.	1 yr. cts.	3, 2, & 1 yr. lbs.	3, 2, & 1 yr. Price.	3, 2, & 1 yr. cts.
July......	1090	$38.04	3½	800	$17.32	2 1-6	600	$12.50	2 4-10	869	$23.43	2 7-10
August ...	......	22.00	......	834	21.73	2 6-10	600	14.75	2½	813	21.14	2 6-10
September.	1150	25.00	2¼	900	18.23	2	600	12.74	2⅛	891	19.00	2⅛
October ...	1172	31.40	2 7-10	1000	21.70	2 1-6	630	15.55	2½	991	23.00	2⅓
November.	......	......	......	967	22.42	2⅓	700	11.83	1 7-10	937	21.25	2¼
December.	......	......	......	974	24.65	2½	700	17.75	2 6-10	902	23.09	2 6-10
Total aver.	1137	$29.11	2 5-6	913	$21.01	2⅓	640	$14.19	2¼	900	21.82	2½

MONTHS. Last six of 1859.	CATTLE.								
	Calves. lbs.	Calves. Price.	Calves. cts.	Oxen. lbs.	Oxen. Price.	Oxen. cts.	Fat cows. lbs.	Fat cows. Price.	Fat cows. cts.
July	......	......	......	1990	$60.50	3	......	......	......
August	......	......	......	2300	70 00	3	......	......	......
September .	......	......	......	2850	93.25	3 3-10	......	......	......
October	350	$8.85	2½	2800	90.00	3⅛	......	......	......
November..	......	......	......	......	......	......	1150	$24.00	2 1-10
December ..	......	......	......	2500	90.00	3 6-10	......	......	......
Total av'age	350	$8.85	2½	2488	$80.75	3 1-5	1150	$24 00	2 1-10

MONTHS. Last six of 1859.	CATTLE.						OTHER STOCK.				Amount of sales.
	Milch cows. lbs.	Milch cows Price.	Milch cows. cts.	Bulls. cts.	Bulls. Price.	Bulls. cts.	Horses.	Mules.	Sheep.	Hogs.	
July	......	$26.50	......	......	......	......	......	......	......	......	$5,500
August ...	......	26.50	......	......	......	......	......	......	......	......	1,700
September.	1400	31.12	2 2-10	......	......	......	......	......	......	......	2,540
October ...	......	17.50	......	......	......	......	$49.33	$46 00	......	......	10,800
November.	......	27.87	......	......	$47.00	......	58.25	......	$1.47	......	3,500
December .	......	25.00	......	......	......	......	......	......	......	......	2,500
Total aver.	1400	$25.75	2 2-10	......	$47.00	......	$53.79	$46.00	$1.47	......	$26,500
	Average per month..........................										$4,417

47th Sale—January 3d, 1860.

CATTLE.

3 years—none offered.
28 head, 2 years, 2 lots.
5....875....$22.25
23....975.... 26.87

Average..960 26.04—2 7-10c. per lb.
7 head, 1 year, 1 lot.
7....600....$12.50—2 1-10c. per lb.
35 head, above ages, averaging round—
940....$24.66—2 6-10c. per lb.
Total number reported sold, 35 head.
Amount of sales, $1,000.

REMARKS.

The very slippery condition of roads prevented cattle being brought to market; but few buyers or sellers.

48th Sale—February 7th, 1860.

CATTLE.

3 head, 3 years, 1 lot.
1175....$38.87—3½c. per lb.
Averaging as above.
110 head, 2 years, 6 lots.
35....865....$20.00
6....825.... 18 05
34....950.... 25.25
13....930.... 19.67
9....975.... 26.00
13....975.... 24.75

Average..917 22.53—2 4-10c. per lb.
123 head, 1 year, 6 lots.
45....725....$21.00
18....625.... 14 25
26....635.... 13.37
6....600.... 11 00
23....710.... 19.00
5....700.... 13.00

Average..665 17.19—2 6-10c. per lb.
236 head, above ages, averaging round—
790....$20.00—2½c. per lb.

CALVES.

10 head, 1 lot.
10....400....$11.75—2 9-10c. per lb.

OXEN.

4 head, 2 yoke.
1 pair, 3 yr....2100....$65.00
1 pair, 6 yr....3200....118.00

Average...........2650 91.50—3½c. p. lb.

FAT COWS.

3 head.
3....1300....$35.00—2 7-10c. per lb.

HORSES.

A large number sold; a few reported.
7 head.
1 ....$80.00
1 .... 85.00
1 ....100.00
1 .... 95.00
1 ....$80.00
1 .... 85.00
1 .... 75.00

Average $86.00
Total number of cattle sold, 253 head.
" " horses reported, 7 head
Amount of sales, $5,600.

49th Sale—March 6th, 1860

CATTLE.

94 head, 3 years, 3 lots.
4....875....$20.00
54....900.... 23.50
36....840.... 39.80

Average..875 29.59—3 4-10c. per lb
70 head 2 years, 3 lots.
48....690....$15.60
12....600.... 12.05
10....625.... 17.50

Average..662 15.26—2½c. per lb.
11 head, 1 year, 3 lots.
2....400....$11.12
4....600.... 14 75
5....550.... 11.00

Average..541 12.39—2½c. per lb.
175 head, above ages, averaging round—
769....$22.80—3c. per lb.

CALVES.

4 head....225....$6.25—3c. per lb.

OXEN.

6 head, 3 yokes.
1 pair, 4 yr....2500....$80.00
1 pair, 5 yr....2450....100.00
1 pair, 2 yr....1600.... 80.00

Average......... 2183 86.67—4c. per lb.

FAT COWS.

5 head.
3....850....$18.00
1....800.... 24.00
1....800.... 24.00

Average.830 20.40—2½c. per lb.

MILCH COWS WITH CALVES.

5 head.
1....800....$19.00
1....800.... 20.00
1....775.... 20 00
1....700.... 16.25
1...1100.... 40.00

Average.838 25.00—3c. per lb.
Total number sold, 195 head.
Amount of sales, $5,600.

REMARKS.

Cattle, generally, rather extra quality; several lots of fine stock at private sale.

A large lot of horses sold, privately and at auction.

50th Sale—April 3d, 1860.

CATTLE.

234 head, 3 and 4 years, 8 lots.
16....700....$17.15
8....900.... 26 10
43....850.... 22 25
26....825.... 24.50
10....850.... 25.50
28....980.... 31.50
36....725.... 16.50
73....820.... 23.00

Average..850 23.50—2¾c. per lb.
56 head, 2 years, 5 lots.
5....725....$14 50
9....675.... 19.00
8....525.... 13.37
6....700.... 16.00
8....625.... 14.87
20....550.... 13.87

Average..697 15.23—2 1-5c. per lb.
48 head, 1 year, 3 lots.
30....575....$16 00
7....600.... 16.30
11....525.... 8.60

Average..578 14 35—2½c. per lb.
338 head, above ages, averaging round—
778....$21.15—2 7-10c. per lb.

CALVES.

5 head....375....$9.15—2 4-10c. per lb.

OXEN.

20 head, 10 yokes.
1 pair, 3 yr....2300....$79.00
1 pair, 6 yr....2900....102.00
1 pair, 5 yr....3160....125.00
1 pair, 5 yr....2300.... 69.00
1 pair..........2300.... 69.00
1 pair, 7 yr....2500.... 71.00
1 pair..........2600.... 78.00
1 pair..........2350.... 77.00
1 pair, 7 yr....2800....110 00
1 pair, 5 yr....2700....100.00

Average.........2591 $88.00—3 4-10c p.lb

FAT COWS.

5 head, 4 lots.
1.... 850....$13.75
1....1100.... 30.00
1....1496.... 43.00
2.... 800.... 15.00

Average.1009 $23.35—2¼c. per lb.

BULLS.

1 (Ky.)....1600....$74.00—4 6-10c. pr. lb.
Total number of cattle sold, 369 head.
Amount of sales, $8,500.

REMARKS.

Many cattle unsold; 400 to 500 head in market.

Many horses sold at private sale at very low rates.

51st Sale—May 1st, 1860.

CATTLE.

49 head, 3 years.
49....780....$23.00—3c. per lb.
124 head, 2 years, 7 lots.
10....675....$17 00
25....625.... 12.50
27....660.... 14.75
17....700.... 18.00
22....610.... 15.05
16....880.... 27.05
4....625.... 12.20

Average..662 20.15—3c. per lb.
50 head, 1 year, 6 lots.
6......350.... $9.87
4......330.... 8.87
10......475.... 12.00
5......500.... 13.20
23......450.... 11.40
2 (hfs).450.... 8.05

Average..438 11.18—2½c. per lb.
223 head, above ages, averaging round—
638....$18 77—3c. per lb.

OXEN.

10 head, 5 yokes.
1 pair, 3 yr....1500....$45.00
1 pair, 7 yr....3200....108.00
1 pair..........2900.... 69.50
1 pair..........2925.... 67.00
1 pair..........1875.... 68.00

Average ....2500 71.50—2⅞c. per lb.

FAT COWS.

8 head.
1....950....$24.62
1....980.... 21.50
1....800.... 20.00

Average.910 $22.04—2 3-10c. per lb.

BULLS.

1 (3 yrs)....1300....$26.50—2c. per lb.
Total number sold, 337 head.
Amount of sales, $4,600.

52d Sale—June 5th, 1860.

CATTLE.

96 head, 3 years, 6 lots.
39 (2&3) 800....$15.75
14...... 920.... 24.90
2...... 900.... 25.00
18......1010.... 30.00
3......1100.... 34.00
20......1200.... 39.12

Average.. 952 $25 38—2⅝c per lb.
170 head, 2 years, 9 lots.
10......650....$12.60
6(hfs).660.... 12.55
1......800.... 15.00
1......900.... 22.00
26......775.... 19.00
40 (6m) 785.... 20.00
32......800.... 21.50

4......680....$15.00
50......850.... 24.87

Average...791 20.73—2 6-10c. per lb.
115 head, 1 year, 8 lots.
30......580....$12.75
1......400.... 12 25
2......400.... 9.90
11......485.... 14.00
8......525.... 13.75
32......550.... 13 35
20......450.... 9 90
11 (hfs).475.... 9.00

Average...504 $12.20—2 4-10c. per lb.
381 head, above ages, averaging round—
750....$19.33—2 6-10c. per lb.

OXEN.

6 head, 3 yokes.
1 pair....3200....$76.00
1 pair....2300.... 65.00
1 pair....2625.... 91.00

Average .....2708 $77.33—2⅞c. per lb.

MILCH COWS AND CALVES.

4 head.
1....1050....$15.50
1....1075.... 23.00
1.... 750.... 16 75

Average. 958 $18.42—1 9-10c. per lb.

HOGS.

9 head....120—6 each 5c. per lb.
Total number of cattle reported, 391 head.
" " hogs " 9 "
Amount of sales, $8,000.

REMARKS.

To show that these "Madison Sales" furnish a market for other counties, we append the offerings from abroad this month, as handed reporter:

From Clinton county.....104 head.
" Marion " ..... 37 "
" Union " ..... 36 "
" Clark " ..... 26 "
" Green " ..... 46 "

Total................249 "

53d *Sale—July* 3d, 1860.

CATTLE.

76 head, 3 years, 3 lots.
10....1000....$20.75
31....1250.... 33.87
35....1100.... 31.75

Average..1148 $31.17—2 7-10c. per lb.
38 head, 2 years, 2 lots.
22....900....$19 00
16....800.... No bid.

Average..860 $19.00—2 2-10c. per lb.
49 head, 1 year, 3 lots.
24....700....No bid.
13....650.... "
12....800....$17.12

Average..711 $17.12—2 4-10c. per lb.
163 head, above ages, averaging round—
949....$27.20—2⅞c. per lb.

OXEN.

2 head, 1 yoke.
1 pair....2900....$100.00—3½c. per lb.

FAT COWS.

2 head....1000....$31.25—3c. per lb.
Total number offered, 167 head.
Withdrawn at bids: generally sold afterwards at private sale, at about same rates, 114 head.
Amount of sales, $3,000.

54*th Sale—August* 7*th*, 1860.

CATTLE.

23 head, 3 years, 2 lots.
3.... 625....$13.70
20....1125.... 33.00

Average..1051 $30.50—3c. per lb.
56 head, 2 years, 3 lots.
20....925....$25.50
3....850.... 18.75
33....975.... 25.12

Average..950 $24.92—2 6-10c. per lb.
71 head, 1 year, 5 lots.
2....480....$17.50
7....510.... 11.75
25....600.... 18.37
2....475.... 11.20
32....750.... 15 87

Average..658 $16.26—2½c. per lb.
150 head, above ages, averaging round—
828....$21.67—2 6-10c. per lb.

OXEN.

6 head, 3 yokes.
1 pair......2225....$69.00
1 pair, 5 yr.2400.... 47.50
1 " " 3000.... 74.75

Average ....2542 $63.75—2½c. per lb.

MILCH COWS AND CALVES.

4 head.
1.... 850....$15.50
1.... 875.... 16.00
1....1100.... 24 00
1....1000.... 23.00

Average.1275 $26.17—2c. per lb.

STOCK SHEEP.

124 head....$1.56 per head.
Total number of cattle sold, 160 head.
Amount of sales, $3,700.

55*th Sale—September* 4*th*, 1860.

CATTLE.

59 head, 3 years, 2 lots.
7 ....$28.20
52 .... 36.00

Average $35.05

154 head, 2 years, 7 lots.

23	$23.25
23	26.25
11	24.50
23	30.50
34	28.00
20	26.75
20	25.75
Average	$26.70

103 head, 1 year, 5 lots.

7	$14.00
24	....
34	13 50
30	14.00
8	14.75
Average	$13.87

316 head, above ages, avera'g round, $25.00.

OXEN.

14 head, 7 yokes.

1 pair	$98.00
1 pair	122.00
1 pair	82.50
1 pair	89.50
1 pair milch cows	68.00
1 pair	....
1 pair	85.00
Average	$90.83

MILCH COWS AND CALVES.

8 head.

1	$23.50
1	27.00
1	17.00
1	34.00
1	22.00
Average	$24.70

SHEEP.

53 head ....$1.95 per head.

HORSES.

10 head.

1 one-year colt	$39.50
1 four-year gelding	60.25
1 sucking colt	24.00
1 three-year colt	80.00
1 three-year filly	70.00
1 mare and colt	46.00
1 four-year filly	65.00
1 five-year gelding	72.00
1 seven-year gelding	67.00
Average	$58.19

Total number of cattle, 338 head.
" " sheep, 53 "
" " horses, 10 "
Amount of sales, $9,000.

56th Sale—Oct. 2d, 1860.

CATTLE.

32 head, 3 years, 2 lots.

10	1,200	$33.40
22	1,050	25.80
Average	11.00	$28.18—2 6-10c. per lb.

102 head, 3 years, 9 lots.

18	950	$19.50
9	900	22.25
10	825	16.40
14 (2&3)	975	26.60
10	925	19.50
5	900	18.30
16	1,025	25.75
7	1,100	30.70
13	1,075	25 50
Average	970	22.73—2⅛c. per lb.

99 head, 1 year, 6 lots.

25	650	$17.35
16	775	16 62
3	575	13.62
12	615	13 00
14	540	13.62
29	612	14.50
Average	612	15.13—2 ½c. per lb.

233 head, above ages—average round.
885....$20.25—2 3-10c. per lb.

OXEN.

16 head, 8 yokes.

1 pair,	2,300	$75.00
1 "	2,200	58.00
1 "	3,790	160.00
1 "	2,400	75.00
1 "	2,600	69.00
2 "	2,200	102.25 each.
1 "	2,840	110.25
Average	2,316	93.97—4c. per lb.

FAT COWS.

15 head.

12 (heif.)	900	$21.50
1	1,100	23.25
2	1,100	26.05
Average	940	22.22—2 4-10c. per lb.

HOGS.

10 head.
150 .... $7.80 per hundred.
Total number cattle sold, 264 head.
" " hogs " 10 "
Amount of sales, $6,000.

57th Sale—November 8th, 1860.

CATTLE.

120 head, 3 years, 3 lots.

53	1,075	$29.00
22	1,150	32.25
45	1,150	32.62
Average	1,117	30.95—2 8-10c. per lb.

131 head, 2 years, 6 lots.

13	950	$24.75
27 (Ky)	1,200	35.00
19 (Oh)	1,100	33.25
9	800	19.75
53	975	25.40
10	975	27.10
Average	1,026	28.19—2¾c. per lb.

39 head, 1 year, 1 lot.
39....775....$21—2 7-10c. per lb.
290 head, above ages—average round.
1,030....$24.92—2 8-10c. per lb.

OXEN.

4 head, 2 yokes.
1 pair, 2,400....$70.25
1 " 2,500.... 74.00

Average..2,450 72.13—3c. per lb.
Total number cattle sold, 294 head.
Amount of sales, $8,500.

Remarks.—For purposes of comparison, (explained below) I add as *addennum* to this month's sales the report of a private sale, first of month in our county.

Addition to 57th—November Sale—1860.

Remarks.—For the purpose of showing the difference between "cash" and "time" sales, or between our "cattle sales" and an Administrator's sale, I give the results of the sale of stock, (November 1, 1860,) of Jos. Chrismore, deceased, adding that *all* the cattle sold at this sale had been purchased at the regular "sales," closing last four months preceding

Time, without interest, nine months.

CATTLE.

160 head, 3 years, 2 lots.
100....$46.50
60.... 31 75

Average....40.91
Av. m's sale.30.95

Excess..... 9.96
165 head, 3 years, 2 lots.
100....$40.25
65.... 28.50

Average....35.62
Av. m's sale.28.67

Excess..... 7.43
37 head, 1 year, 1 lot.
37....$24.00
Av. m's sale. 21.00

Excess...... 3.00
This sale reports 362 head, av. round $36 80
Mo's " " 290 " " " 24.92

Excess..........................11.88
Amount of this sale, $14,000.

58th Sale—Decemrer 4th, 1860.

CATTLE.

125 head, 3 years, 5 lots.
20............1,200....$36.00
23............ 980.... 23.75
33 (Ky.) 1,080.... 29.25
49 (Logan co.) 1,160.... 31.00
19 (No bid) ....

Average.......... 1,112 30.00—2 7-10c.
60 head, 2 years, 4 lots.
9......1,150 ....$32.00
11......1,000.... 26.30
37 (Ky.) 1,175.... 35 00
3...... 700.... 14.75

Average...1,076 31.94—3c. per lb.
154 head, 1 year, 7 lots.
25......825....$20.00
36......770.... 20.00
14......980.... 25 00
12......725.... 11.50
25(heif.)610.... 12.00
26......750.... 19.00
19......675.... 13 50

Average.. 768 16.67—2 2-10c. per lb.
339 head above ages—average round.
950....$24.30—2½c. per lb.

OXEN.

14 head, 7 yokes.
1 pair 4 yrs., 3,200....$129.00
1 " 5 " 2,760.... 85.00
1 " 2,700.... 85.00
1 " (fat) 4,360.... 146.00
1 " 2,700.... 70.00
1 " 2,600.... 85.00
1 " 2,670.... 55 00

Average..........3,000 93.57—3 1-10c.

OLD OXEN, FOR BUTCHER.

5 head....1,375....$29.50—2 1-6c. per lb.

BULLS.

1 head, 2 yrs....1,000....$25.00—2½c. pr. lb.

FAT COWS.

3 head....1,300....$27.10—2 8-10c. per lb.

MILCH COWS AND CALVES.

3 head.
1....$20.00
1.... 18.25
1.... 13.60

Average. 17.28

HOGS.

9 head..90..$3.95 per h'd..$4.40 per cwt.
Total number cattle sold, 365 head.
Amount of sales, $10,000.

Recapitulation—1860—*Showing the number sold (as per report) of each age and kind; also, number of lots in which offered, of* 3, 2 *and* 1 *year olds, and the total number of cattle, all ages, with the total number of stock of all kinds.*

Months.	CATTLE.														OTHER STOCK.				
	3 years.	No. lots.	2 years.	No. lots.	1 year.	No. lots.	Total 3, 2 and 1 year.	Total No. lots.	Calves.	Oxen.	Fat cows.	Milch cows and calves.	Bulls.	Total cattle.	Horses.	Mules.	Sheep.	Hogs.	Total stock all kinds.
1860.																			
January	....	..	28	2	7	1	35	3	..	....	..	....	..	35	..	..	....	..	35
February	3	1	110	6	123	6	236	13	10	4	3	....	..	253	7	..	....	..	260
March	94	3	70	3	11	3	175	9	4	6	5	5	..	195	20	..	....	..	215
April	234	8	56	5	48	3	338	16	5	20	5	....	1	369	..	..	....	..	369
May	49	1	124	7	50	6	223	14	..	10	3	....	1	337	..	..	....	..	337
June	96	6	170	9	165	8	381	23	..	6	..	4	..	391	..	..	....	9	400
July	76	3	38	2	49	3	163	8	..	2	2	....	..	167	..	..	....	..	167
August	23	2	56	3	71	5	150	10	..	6	..	4	..	160	..	..	124	..	284
September	59	2	154	7	103	5	316	14	..	14	..	8	..	338	10	..	53	..	401
October	32	2	102	9	99	6	233	17	..	16	15	....	..	264	..	..	....	10	274
November	120	3	130	6	39	1	290	10	..	4	..	....	..	294	..	..	....	..	294
	160	2	165	2	37	1	362	5	..	....	5	....	..	362	..	..	....	..	362
December	125	5	60	4	154	7	339	16	..	14	3	3	1	365	..	..	....	9	374
Total	1071	36	1264	63	906	54	3241	153	19	102	41	24	3	3430	37		177	28	3672
Average per month.	83		92		72		240							256					276

Table—*Showing the average prices of the different ages of Cattle, with average estimated weights (given by best judges, which are proven about correct) and the average price per hundred pounds, of all ages, separately; also, average of* 1, 2 *and* 3 *year old cattle together, for each month of* 1860, *and total average for the year of all kinds, with the addition of the averages of all other stock, reported monthly, and total for the year; also, amount of cash sales, monthly and total.*

CATTLE.

Months.	3 yrs. lbs.	3 yrs. Price.	3 yrs. cts.	2 yrs. lbs.	2 yrs. Price.	2 yrs. cts.	1 yr. lbs.	1 yr. Price	1 yr. cts.	3, 2 and 4 years. lbs.	3, 2 and 1 years. lbs.
1860.											
January	......	......	......	960	$26 04	2 7-10	940	24 66	2 6-10	940	$24 66
February	1175	$38 87	3⅛	917	22 53	2 4-10	665	17 19	2 6-10	790	20 00
March	875	29 59	3 4-10	662	15 26	2⅛	541	12 39	2⅛	769	22 80
April	850	23 50	2¼	697	15 23	2 1-5	578	14 35	2⅛	778	21 15
May	780	23 00	3	662	20 15	3	438	11 18	2⅛	638	18 77
June	952	25 38	2 2-3	791	20 73	2 6-10	504	12 20	2 4-10	750	19 33
July	1148	31 17	2 7-10	860	19 00	2 2-10	711	17 12	2 4-10	949	27 20
August	1051	30 50	3	950	24 92	2 6-10	658	16 26	2⅛	828	21 67
September	......	35 05	......	......	26 70	......	......	13 87	......	......	25 00
October	1100	28 18	2 6-10	970	22 73	2⅛	612	15 13	2½	885	20 25
Novem'r	1117	30 95	2 8-10	1026	28 19	2 3-4	775	21 00	2 7-10	1030	24 92
	......	40 91	......	......	35 62	......	......	24 00	......	......	36 80
December	1112	30 00	2 7-10	1076	31 94	3	768	16 67	2 2-10	950	24 30
Av. per yr.	1016	29 65	2 9-10	870	24 86	2 7-10	654	17 46	2⅛	847	23 99

TABLE—*Showing the average price of cattle for* 1860.—Continued.

CATTLE.

MONTHS.	3 & 4 years. cts	Calves. lbs.	Calves. Price.	Calves. cts.	Oxen. lbs.	Oxen. Price.	Oxen. cts.	Fat cows. lbs	Fat cows. Price.	Fat cows. cts.	Milch cows. lbs.
1860.											
January..	2 6-10	......	......	......	......	......	......	......	......	......	......
February.	2½	200	$11 75	2 9-10	2650	$91 50	3⅓	1300	$35 00	2 7-10	......
March....	3	225	6 25	3	2183	86 67	4	830	20 40	2½	838
April.....	2 7-10	375	9 15	2 4-10	2591	88 00	3 4-10	1009	23 35	2⅛	......
May......	3	......	......	......	2500	71 50	2 9-10	910	22 04	2 3-10	......
June.....	2 6-10	......	......	......	2708	77 33	2 9-10	......	......	......	958
July	2 9-10	......	......	......	2900	100 00	3½	1000	31 25	3	......
August...	2 6-10	......	......	......	2542	63 75	2½	......	......	......	1275
September	......	......	......	......	......	90 83	......	......	......	......	......
October...	2 3 10	......	......	......	2316	93 97	4	940	22 22	2 4-10	......
Novem'r	2 8-10	......	......	......	2450	72 13	3	......	......	......	......
	......	......	......	......	......	......	......	......	......	......	......
December.	2½	......	......	......	3000	93 57	3 1-10	1375	29 50	2½	1300
Av. per yr.	2 7-10	267	9 05	2¾	2584	84 48	3⅛	1052	26 25	2½	1093

	CATTLE.					OTHER STOCK.				
MONTHS.	Milch cows. Price	Milch cows cts.	Bulls. lbs.	Bulls. Price.	Bulls. cts.	Horses.	Mules.	Sheep.	Hogs.	Amount of sales.
1860.										
January ..	......	......	......	......	......	......	......	......	......	$1,000
February .	......	......	......	......	......	$85 85	......	......	......	5,600
March	$25 00	3	......	......	......	......	......	......	......	5,600
April	......	......	1600	$74 00	4 6-10	......	......	......	......	8,500
May	......	......	1300	26 50	2	......	......	......	......	4,600
June	18 42	1 9-10	......	......	......	......	......	......	$6 00	8,000
July......	......	......	......	......	......	......	......	......	......	3,000
August ..	26 17	2	......	......	......	......	......	$1 56	......	3,700
September	24 70	......	......	......	......	58 19	......	1 95	......	9,000
October ..	......	......	......	......	......	......	......	......	5 17	6,000
Novem'r	......	......	......	......	......	......	......	......	......	8,500
	......	......	......	......	......	......	......	......	......	*
December	27 10	2 8-10	1000	25 00	2½	......	......	......	4 40	10,000
Av. per yr.	24 28	2⅓	1300	41 83	2⅛	72 10		1 76	5 19	73,500
								Av. per month	.....	6,125

* Extra sale, $14,000.

59th Sale—January 1st, 1861.

CATTLE.

29 head, 3 years, 3 lots.
20....1115....$29.75
24....1160.... 30.00
25....1125.... 30.00

Average..1134 $30—2 6-10c. per lb.
105 head, 2 yrs., 4 lots.
20....1115....$29.75
8.... 875....$22.45
44.... 810.... 17.25
31.... 825.... 21.50

Average.. 868 21.36—2½c. per lb.
17 head, 1 year, 1 lot.
17....810....$19.50—2 4-10c. per lb.
Average as above.
191 head above ages, averaging round—
959.........$24.29—2½c. per lb.
Total number reported sold, 191 head.
Amount of sales, $4700.

60th Sale—February 5th, 1861.

CATTLE.

3 years, none.
31 head, 2 years, 2 lots.
28 (Ky).1150 ..$38 12
3 (hfs). 800.... 16.50

Average....1150 38.12—3⅓c. per lb.
1 year, none.
31 head, above age, averaging as above—

OXEN.

4 head, 2 yokes.
1 pair, 3 yrs...2100....$70.00
1 pair, 2 yrs...1800.... 36.00

Average ....1950 53.00—2¾c. per lb.

MILCH COWS.

3 head.
1....875....$19.75
1....900.... 17.00
1............ 24.00

Average.888 20.25—2¼c. per lb.

BULLS.

2 head.
1 ...4 yrs $20.00
1....1 yr....950.... 18.00

Average......... 950 19.00
Number reported sold, 40 head.
Amount of sales, $2,000

REMARKS.

Very few cattle offered; buyers and surplus feed very abundant; a good many horses sold at private sale and auction—no report.

61st Sale—March 5th, 1861.

CATTLE.

67 head, 3 years, 5 lots.
14...... 827....$20.87
13(3&4) 1265.... 37.87
15......1000.... 27.87
17...... 975.... 29.62
8....... 810.... 20.00

Average..1000 27.88—2 8-10c. per lb.
137 head, 2 years, 9 lots.
11 ....675....$14.60
20 ....550.... 13.00
7 ....650.... 19.50
11 ....810.... 19.30
24 ....720.... 19.87
27 ....700.... 21.50
10 ....800.... 17.00
17 ....650.... 15 00
10 ....700.... 12.95

Average.. 687 17.38—2½c. per lb.
30 head, 1 year, 1 lot.
30....500....$14.00—2 8-10c. per lb.
234 head, above ages, averaging round—
757....$20.00—2⅝c. per lb.

OXEN.

2 head, 1 yoke.
1 pair, 2900....$90.00—3 1-10c. per lb.

MILCH COWS AND CALVES.

5 head.
1....1150....$26.75
2....1350.... 38.50
1............ 29.00
1.... 850.... 26 00

Average.1175 31.75—2 7-10c. per lb.
Total number sold, 241 head.
Amount of sales, $5,000.

62d Sale—April 2d, 1861.

CATTLE.

105 head, 3 years, 9 lots.
18...... 850....$18.50
5...... 950.... 25.00
28...... 875.... 23.37
1......1100.... 29.00
16...... 800.... 21.12
3 (hfs). 700.... 13.00
5...... 650.... 16.00
1......1500.... 38.50

Average.. 888 23.29—2 6-10c. per lb.
108 head, 2 years, 6 lots.
16(60 dys) 615....$13.85
15 ....700.... 18.00
23 ....700.... 20.37
4 ....625.... 14.00
25 ....725.... 19.00
25 ....650.... 18.90

Average.... 679 18.18—2 7-10c. per lb.
5 head, 1 year, 1 lot.
5....375....$11.00—3c. per lb.
218 head above ages, averaging round—
773....$20.40—2⅝c. per lb.

OXEN.

8 head, 4 yokes.
1 pair........2850....$105.00
1 pair........1850.... 65.00
1 pair, 7 yrs .2700.... 90.00
1 pair, 5 yrs .2700.... 89.00

Average........2525 87.25—3½c. per lb.

MILCH COWS AND CALVES.

1 ....$25.50

HOGS.

40 head, stock hogs....$4 30c. per cwt.
Several other lots hogs sold at about same rate.
Number cattle sold, 227 head.
Amount of sales, $5,500.

63*d Sale—May* 7*th*, 1861.

CATTLE.

8 head, 3 years, 1 lot.
8....1050....$29.75—2 8-10c. per lb.
Average as above.
21 head, 2 years, 2 lots.
13....800....$19.00
8....700.... 15.30
Average..750 17.60—2½c. per lb.
4 head, 1 year, 1 lot.
4....475....$12.00—2½c. per lb.
33 head above ages, averaging round.
800....$20.00—2½c. per lb.

OXEN.

2 head, 1 yoke.
1 pair, 6 yrs.2800....$73.00—2 6-10c. pr lb.

FAT COWS.

1....700....$19.00—2 7-10c. per lb.

BULLS.

1, 3 yrs....1200....$32.00—2 7-10c. pr lb.
Number reported sold, 37 head.
Amount of sales, $1,000.

REMARKS.

The "hard times," present and prospective, scarcity of money, bad roads, and uncertainty with regard to the war, caused but a very slim offering of stock; many people in attendance, but few want to buy or sell.

64*th Sale—June* 4*th*, 1861.

CATTLE.

36 head, 3 years, 2 lots.
2....950....$23.00
34....920.... 23.25
Average..922 23.21—2½c. per lb.
6 head, 2 years, 1 lot.
6....760....$19.00—2½c. per lb.
Average as above.
42 head, 1 year, 3 lots.
1 (hfr).650....$ 9.00
15......450.... 11.00
26......400.... 11.95
Average.. 424 11.54—2 7-10c. per lb.
84 head above ages, averaging round—
661....$17.09—2 6-10c. per lb.

MILCH COWS AND CALVES.

2 head.
1............$26 00
1....1000.... 14.00
Average.1000 20.00—2c. per lb.

BULLS.

1 head.
4 years.1500....$48.00—3 2-10c. per lb.
Total number reported sold, 87 head.
Amount of sales, $1,600.

REMARKS.

Many lots in market not offered, on account of scarcity of money, causing low prices to rule. Weather very bad.

65*th Sale—July* 2*d*, 1861.

CATTLE.

3 years, none.
54 head, 2 years, 4 lots.
12....800....$15.37
11....850.... 19.25
19....750.... 16.00
15....850.... 15.25
Average..806 16.29—2c. per lb.
53 head, 1 year, 3 lots.
15....500....$11.90
16....500.... 10.50
22....650.... 14.94
Average..562 12.74—2½c. per lb.
110 head, above ages—average round.
689....$14.60—2½c. per lb.

OXEN.

2 head, 1 yoke.
1 pair, 2,900....$75.00—2 7-10c. per lb.

FAT COWS.

1....1,150....$27.75—2 4-10c. per lb.

MILCH COWS AND CALVES.

4 head.
1.... ....$24.50
1....1350.... 36.30
I.... .... 23.00
1.... .... 22.00
Average.1350 26.45—2c. per lb.
Number cattle offered, 117 head.
Amount of sales, $2,000.

REMARKS.—A few cattle sold from necessity, wanting money; a good many in market not offered.

66*th Sale—August* 6*th*, 1861.

CATTLE.

84 head, 3 years, 5 lots.
5........1,110....$24.12
24........ 850.... 15.00
8........1,000.... 20.50
1 (6 yrs.) 1,500.... 46.25
46 (2 & 3) 1,100.... 22.50
Average..... 1,024 20.54—2c. per lb.
39 head, 2 years, 2 lots.
15....1,000....$22 00
24.... 800.... 16.50
Average.. 877 18.62—2½c. per lb.

87 head, 1 year, 3 lots.
27....600....$12.80
50....700.... 17.05
10....825.... 18.50

Average..683 15.90—2⅓c. per lb.
210 head, above ages—average round.
856....$18.26—2⅛c. per lb.

MILCH COWS AND CALVES.

1 head..................$20 00

BULLS.

1 head, 1 yr....800....$24.00—3c. per lb.
Number of cattle reported, 212 head.
Amount of sales, $4,000.

67th Sale—September 3d, 1861.

CATTLE.

40 head, 3 years, 1 lot.
40 (2 & 3) 920....$17.25—1 9-10c. per lb.
Average as above.
79 head, 2 years, 4 lots.
35....1,100....$24.75
24.... 820.... 14.00
9....1,000.... 20.05
11.... 920.... 18.10

Average... 978 21.49—2 2-10c. per lb.
165 head, 1 year, 3 lots.
100....700....$14.00
40....650.... 13 00
25....575.... 11.50

Average..669 13.48—2c. per lb.
284 head, above ages—average round.
800....$15.53—1 9-10c. per lb.

OXEN.

6 head, 3 yokes.
1 pair, 2,400....$77.51
1 " 3.300.... 74.00
1 " 2,700.... 79.25

Average.. 2,800 76.92—2¾c. per lb.

FAT COWS.

3 head.
2....1,200....$26.75
1....1,125.... 26.10

Average.1,175 26.53—2¼c. per lb.

MILCH COWS AND CALVES,

3 head.
1....$24.75
1.... 25.00
1.... 13.05

Average.. 21.27
Total number cattle reported sold, 300 head.
Amount of sales, $5,000.

REMARKS.—Over 400 cattle in market! very large attendance, but few desired to purchase owing to the unsettled condition of the country. Consider money valuable.

68th Sale—October 1st, 1861

CATTLE.

3 years, none offered.
49 head, 2 years, 2 lots.
25.... 950....$17.87
24....1,000.... 22.90

Average.. 977 20.34—2 1-10c. per lb.
93 head, 1 year, 4 lots.
17....635....$11.60
16....650.... 10.62
20....760.... 16.35
40....750.... 16.00

Average..714 14.35—2c. per lb.
142 head, above ages—average round.
804 $16.51—2c. per lb.

CALVES.

5 head....300....$5.35—1 7-10c. per lb.

OXEN.

4 head, 2 yokes.
1 pr. (8 yrs) 3,200....$75.00
1 pr. (3 yrs) 2,200....

Average....... 2,700 75.00—2 8-10c.

MILCH COWS AND CALVES.

2 head.
1....1,000....$10.05
1.... .... 20.25

Average.1,000 15.15—1½c. per lb.

FAT COWS.

1....1,318....$24.00—1 9-10c. per lb.
Number of cattle in market, 154 head.
Amount of sales, $2,500.

69th Sale—November 5th, 1861.

CATTLE.

43 head, 3 years, 3 lots.
5.... 975....$13.60
21....1,350.... 35.00
17....1,100.... 25.50

Average..1,208 28.06—2⅓c. per lb.
76 head, 2 years, 4 lots.
4.... 850....$17.00
15.... 900.... 15.10
7.... 840.... 15.00
50....1,050.... 24.50

Average.. 1,000 20.00—2c. per lb.
84 head, 1 year, 5 lots.
16....600....$12.00
14....615.... 12.00
19....670.... 16.00
14....750.... 16.00
21....675.... 16.25

Average..662 14.62—2 2-10c. per lb.
203 head, above ages—average round.
900....$19.68—2 2-10c. per lb.

OXEN.

6 head, 3 yokes.
1 pair, 2,200....$47.00
1 " 3,250.... 96.25
1 " 3,000.... 74.50
Average.. 2,817 72.58—2 6-10c. per lb.

MILCH COWS AND CALVES.

5 head.
1.... ....$29.50
1.... .... 29.60
1.... .... 17.00
1.... .... 18.00
1....1,000.... 13.25
Average.1,000 21.47—2⅛c. per lb.

BULLS.

1.................... $46.50

SHEEP.

60 head common sheep, $2.30
Number cattle reported sold, 215 head.
Amount of sales, $4,600.

Remarks.—Largest sale of past six mos.; many lots not sold; several sold not reported; large increase of offerings.

70th Sale—December 3d, 1861.

CATTLE.

91 head, 3 years, 3 lots.
31........1,272....$35.00
10 (2 & 3) 1,100.... 25.00
50 (2 & 3) 1,175.... 29.00
Average...... 1,200 30.60—2 6-10c.
214 head, 2 years, 10 lots.
11........1,000....$20.25
32 (2 & 3) 900.... 16.50
42 (2 & 3) 850.... 15.50
24........ 910.... 18.00
8 (2 & 3) 1,000.... 19.50
2........ 750.... 12.75
2........ 825....$13.00
19 (2 & 3) 1,000.... 20.25
50........1,040.... 21.95
24........ 800.... 16.87
Average....... 929 18.36—2c. per lb.
122 head, 1 year, 4 lots.
20 fat cows, 850....$9.00
37........ 675.... 13.75
50........ 770.... 16.25
15........ 678.... 11.80
Average........742 13.75—1 8-10c. per lb.
427 head, above ages—averaging round.
934....$19.65—2 1-10c. per lb.

CALVES.

19 head....400....$5.00—1¼c, per lb.

OXEN.

4 head, 2 yokes.
1 pr. (2 yrs.) 1,600....$32.50
1 pr......... 2,600.... 71.50
Average...... 2,100 52.00—2¼c. per lb.

MILCH COWS AND CALVES.

1..........................$17.00

MULES.

14 head, 2 years...........$64.00

SHEEP.

150 head (poor)............$1.30
105 " (common)....... 2.08
255 " average......... 1.62
Number cattle sold, 451 head.
" mules " 14 "
" sheep " 255 "
Amount of sales, $10,000.

Remarks.—Over 550 head of cattle in market; several lots at private sale; quality better; prices low; large number from Indiana.

Recapitulation—1861—*Showing the number sold (as per report) of each age and kind; also number of lots in which offered of 3, 2, and 1 year olds; and the total number of cattle, of all ages, with the total number of stock of all kinds.*

Months.	Cattle.														Other stock.				
	3 years.	No. lots.	2 years.	No. lots.	1 year.	No. lots.	3, 2, & 1 year. Total.	3, 2, & 1 year. No. lots—total.	Calves.	Oxen—head.	Fat cows.	Milch cows and calves.	Bulls.	Total number cattle.	Horses.	Mules.	Sheep.	Hogs.	Total stock, all kinds.
1861.																			
January	69	3	105	4	17	1	191	8	..	..	..	......	..	191	..	..	.....	..	191
February	.....	..	31	2	.....	..	31	2	..	4	..	3	2	40	..	..	.....	..	40
March	67	5	137	9	30	1	234	15	..	2	..	5	..	241	..	..	.....	..	241
April	105	9	108	6	5	1	218	16	..	8	..	1	..	227	..	..	.....	40	267
May	8	1	21	2	4	1	33	4	..	2	..	1	1	37	..	..	.....	..	37
June	36	2	6	1	42	3	84	6	..	..	..	2	1	87	..	..	.....	..	87
July	.....	..	57	4	83	3	110	7	..	2	1	4	..	117	..	..	.....	..	117
August	84	5	39	2	87	3	210	10	..	..	..	1	1	212	..	..	.....	..	212
September	40	1	79	4	165	3	284	8	..	6	3	3	..	296	..	..	.....	..	296
October	.....	..	49	2	93	4	142	6	5	4	1	2	..	154	..	..	.....	..	154
November	43	3	76	4	84	5	203	12	..	6	..	5	1	215	..	..	60	..	275
December	91	3	214	10	122	4	427	17	19	4	..	1	..	451	..	14	255	..	720
Totals	543	32	922	50	702	29	2167	111	24	38	5	28	6	2268	..	14	315	40	2637
Average per month	60	..	77	..	64	..	181	.....	..	..	..	.....	..	189	..	..	.....	..	220

Table—*Showing the average prices of the different ages of cattle, with average estimated weights (given by best judges, which are proven about correct), and the average price per 100 lbs., of all ages, separately; and also average of 1, 2, and 3 year old cattle, together, for each month of 1861, and total average for the year of all kinds, with the addition of the averages of all other stock, reported monthly, and total for the year; also the amount of "cash sales" monthly, and total*

Months.	Cattle.											
	3 yrs. lbs.	3 yrs. Price.	3 yrs. cts.	2 yrs. lbs.	2 yrs. Price.	2 yrs. cts.	1 yr. lbs.	1 yr. Price.	1 yr. cts.	3, 2, & 1 yr. lbs.	3, 2, & 1 yr. Price.	3, 2, & 1 yr. cts.
1861.												
January	1134	$30 00	2 6-10	868	$21.36	2½	810	$19.50	2 4-10	959	$24.29	2½
February	......	......	......	1150	38.12	3⅓	.....	......	......	1150	38.12	3⅓
March	1000	27.80	2 8-10	687	11.38	2½	500	14.00	2 8-10	754	20.00	2⅝
April	888	23.29	2 6-10	679	18.18	2 7-10	375	11.00	3	773	20.40	2⅝
May	1050	29.75	2 8-10	750	17.60	2⅓	475	12.00	2½	800	20.00	2½
June	922	23.21	2½	760	19.00	2½	424	11.54	2 7-10	661	17.09	2 1-10
July	......	......	......	806	16.29	2	562	12.74	2¼	689	14.60	2⅛
August	1024	20.54	2	877	18.62	2⅛	683	15.90	2⅓	856	18.26	2⅛
September	920	17.25	1 9-10	978	21.49	2 2-10	669	13.48	2	800	15.53	1 9-10
October	......	......	......	977	20.34	2 1-10	714	14.35	2	804	16.51	2
November	1208	28.06	2⅓	1000	20.00	2	662	14.62	2 2-10	900	19.68	2 2-10
December	1200	30.60	2 6-10	929	18.36	2	742	13.75	1 8-10	934	19.65	2 1-10
Total aver.	1037	25.62	2½	872	20.06	2⅓	601	13.90	2 4-10	840	20.43	2½

Table—*Showing the average prices of cattle for* 1861—Continued.

Months.	CATTLE.								
	Calves. lbs.	Calves. Price.	Calves. cts.	Oxen. lbs.	Oxen. Price.	Oxen. cts.	Fat Cows. lbs.	Fat Cows. Price.	Fat Cows. cts.
1861.									
January....	....	....	....	....	....	....	....	....	....
February...	....	....	....	1950	$53.00	2¾	....	....	....
March.......	....	....	....	2900	90.00	3 1-10	....	....	....
April.......	....	....	....	2525	87.25	3½	....	....	....
May........	....	....	....	2800	73.00	2 6-10	....	....	....
June	....	....	....	....	....	....	....	....	....
July	....	....	....	2900	75.00	2 7-10	1150	$27.75	2 4-10
August	....	....	....	....	....	....	....	....	....
September..	....	....	....	2800	76.92	2¾	1175	26.53	2¼
October	300	$5.35	1 7-10	2700	75.00	2 8-10	1318	24.00	1 9-10
November ..	....	....	....	2817	72.58	2 6-10	....	....	....
December ..	400	5.00	1¼	2100	52.00	2½	....	....	....
Total av'age	3.50	5.18	1⅓	2610	72.75	2 8-10	1214	26.09	2 4-10

Months.	CATTLE.						OTHER STOCK.				Amount of sales.
	Milch cows. lbs.	Milch cows. Price.	Milch cows. cts.	Bulls. lbs.	Bulls. Price.	Bulls. cts.	Horses.	Mules.	Sheep.	Hogs.	
1861.											
January ..	......	......	......	......	......	......	....	......	......	......	$4,700
February .	888	$20.25	2¼	950	$19.00	2	....	......	......	......	2,000
March	1175	31.75	2 7-10	......		......	....	......	......	......	5,000
April	......	25.50		......	......	......	....	......	......	$4.30	5,500
May	700	19.00	2 7-10	1200	32.00	2 7-10	....	......	......	......	1,000
June......	1000	20.00	2	1500	48.00	3 2-10	....	......	......	......	1,600
July	1350	26.45	2	......	......	......	....	......	......	......	2,000
August ...	......	20.00	......	800	24.00	3	....	......	......	......	4,000
September.	......	21.27	......	......	......	......	....	......	......	......	5,000
October ...	1000	15.15	1½	......	......	......	....	......	......	......	2,500
November.	1000	21.47	2⅛	......	46.50	......	....	......	$2.30	......	4,600
December.	......	17.00	......	......	......	......	....	$64.00	1.62	......	10,000
Total aver.	1016	21.62	2⅛	1112	33.90	2¾	....	64.00	1.96	4.30	47,900
	Average per month......										$4.000

71st Sale—January 7th, 1862.

CATTLE.

3 years, none in market.

34 head, 2 years, 2 lots.

14	875	$15.30
20	875	19.50
Average	875	17.77—2c. per lb.

84 head, 1 year, 4 lots.

27	600	$9.95
16	700	14.00
1	1226	30.00
40	800	16.35
Average	722	14.00—1 9-10c. per lb.

118 head, above ages, averaging round—765....$15.09—2c. per lb.

MILCH COWS AND CALVES.

3 head.

1	1000	$14.00
1		14.50
1	1200	26.59
Average	1100	18.36—1 7-10c. per lb.

Total number reported sold, 121 head.

Amount of sales, $1,800.

72d Sale—February 4th, 1862.

CATTLE.

26 head, 3 years, 2 lots.
20.... 925....$24.10
6....1200.... 15.25

Average.. 988 22.06—2¼c. per lb.
89 head, 2 years, 4 lots.
26....750....$15.45
31....725.... 13.12½
19....825.... 17.50
13....650.... 12.93

Average..743 14.71—2c. per lb.
70 head, 1 year, 4 lots.
19 (mix'd).725....$10 50
14.........725.... 16.70
14 (mix'd).600.... 13.75
23.........700.... 16.05

Average.....692 14.21—2 1-10c. per lb.
185 head, above ages, averaging round—
790....$15.55—2c. per lb.

CALVES.

6 head.
4....300....$7.00
2....600....12.00

Average.400 8.67—2 1-6c. per lb.

OXEN.

6 head, 3 yokes.
1 pair, 4 ys....2200....$60.00
1 pair.........2200.... 66.25
1 pair.........2600.... 77.50

Average.........2333 67.92—3c. per lb.

MILCH COWS AND CALVES.

3 head.
1............$12.00
1............ 21.00
1....1300.... 40.00

Average.1300 24.33—1⅞c. per lb.

FAT COWS.

1....1300....$40.00—3c. per lb.
Total number sold, 201.
Amount of sales, $3,200.

REMARKS.

Stock from other counties nearly all fair quality; large attendance.

73d Sale—March 4th, 1862.

CATTLE.

216 head, 3 years, 10 lots.
24...... 820....$17.75
29......1000.... 24.80
2(4 ys).1050.... 18.00
32...... 900.... 21.00
16...... 750.... 18.00
15...... 750.... 14.20
26......1000.... 27.00
50 (3&4)1100.... 36.05
2......1300.... 26,50
20...... 850.... 18.00

Average.... 937 24.80—2 6-10c. per lb.
117 head, 2 years, 6 lots.
8.........750....$15.00
32.........750.... 18.00
25.........590.... 10.61
12 (mix'd) 650.... 10.50
20.........550.... 10.25
20.........500.... 9.00

Average......628 12.75—2c. per lb.
64 head, 1 year, 3 lots.
49....500....$14.00
7....275.... 6.00
8....345.... 7.50

Average..456 12.31—2 7-10c. per lb.
397 head, above ages, averaging round—
771....$19.23—2½c. per lb.

OXEN.

16 head, 8 yokes.
1 pair, 5 ys....2700....$81.00
1 pair, 3 ys....1700.... 40.00
1 pair.........1720.... 42.75
1 pair.........1750.... 44.25
1 pair.........1800.... 40.50
1 pair.........2100.... 55.00
1 pair, 6 ys....2600.... 59.00
1 pair.........2600.... 61.00

Average ....2121 52.85—2½c. pr. lb.

MILCH COWS AND CALVES.

2 head.
1 ....$20.25
1 .... 10.00

Average....................... 15.13
Total number sold, 415 head.
Amount of sales, $8,200.

REMARKS.

Many sheep, hogs and cattle sold, both at private sale and auction, not gotten by reporter.

74th Sale—April 1st, 1862.

CATTLE.

101 head, 3 years, 7 lots.
24...... 750....$14.87
2 (4ys)1150.... 30.00
6...... 550.... 17.00
10...... 850.... 20.00
8...... 980.... 29.00
31......1050.... 26.25
20...... 850.... 20.00

Average.... 886 21.43—2 4-10c. per lb.
98 head, 2 years, 8 lots.
14.... 750....$16.87
11.... 800.... 19 25
3.... 600.... 16.87
24.... 550.... 8.80
5.... 650.... 13.25
9.... 575.... 9.20
8.... 610.... 11.20
24.... 650.... 14.80

Average.. 650 13.30—2c. per lb.
37 head, 1 year, 4 lots.
3......275....$5.35
3 (hfs).450.... 6.35

28......400...$11.50
3......520.... 8.40

Average....400 10.33—2 6-10c. per lb.
236 head, above ages, averaging round—
709....$16.34—2 3-10c. per lb.

OXEN.

4 head, 2 yokes.
1 pair....2000....$52.50
1 pair....2000.... 55.00

Average .....2000 53.75—2 7-10c. p. lb.

MILCH COWS AND CALVES.

4 head.
1....1000....$22.25
1.... 750.... 12.50
1............ 19.00
1............ 24.50

Average. 875 19.56—2 2-10c. per lb.
Total uumber reported sold, 244 head.
Amount of sales, $4,100.

REMARKS.

Several lots very common and light; 275 very small yearlings. These were from Indiana; do not suit our "blue grass;" about agree with "scallawags."

75th Sale—May 6th, 1862.

CATTLE.

105 head, 3 years, 7 lots.
2..........1000....$24.00
6..........1000.... 24.12
20.......... 925.... 22.50
17.......... 825.... 17.50
30, 4 to 8 ys.1050.... 29.00
21 " " .1200.... 28.00
9.......... 995.... 28.12

Average......10.20 24.68—2 4-10c. p. lb.
86 head, 2 years, 7 lots.
26.... 720....$10.15
12.... 670.... 15.50
12.... 650.... 16.00
2.... 700.... 15.37
4.... 550.... 11.40
15.... 725.... 17.00
15.... 730.... 15.75

Average.. 628 15.88—2½c. per lb.
36 head, 1 year, 2 lots.
30.... 520....$11.75
6.... 400.... 6.75

Average.. 500 11.00—2 2-10c. per lb.
227 head, above ages, averaging round—
825....$19.16—2½c. per lb.

OXEN.

12 head, 6 yokes.
1 pair....3000....$95.00
1 pair....2300.... 70 00
1 pair....2600.... 76.00
1 pair....2800.... 80.00
1 pair....2800....107.00
1 pair....2600.... 67.00

Average .....2700 79.17—3c. per lb.

MILCH COWS AND CALVES.

1 ....$20.00

HOGS.

15 head....110....$2.15 per hundred

SHEEP.

8 stock sheep....$1.95 per head.
Total number sold, 240 head.
Amount of sales, $5,200.

REMARKS.

Some 200 head Indiana "scallawags" unsold; not wanted. Our graziers fear to ruin their reputation by purchasing this stuff, and are ashamed to drive them home.

76th Sale—June 3d, 1862.

CATTLE.

125 head, 3 years, 4 lots.
17.... 960....$22.00
28.... 875.... 14.60
41....1300.... 41.75
39....1125.... 28.75

Average..1096 29.00—2½c. per lb.
86 head, 2 years, 6 lots.
12.... 750....$16 50
3.... 700.... 13.62
19.... 925.... 23.25
24.... 800.... 16.87
14.... 575.... 10.25
14.... 560.... 9.80

Average.. 742 15.09—2c. per lb.
100 head, 1 year, 8 lots.
9.... 650....$14.40
6.... 360.... 8.12
17.... 450.... 11.00
11.... 550.... 14.00
10.... 450.... 7.50
1.... 800.... 16.00
42.... 475.... 10.00
4.... 550.... 8.12½

Average.. 492 10.63—2 1-6c. per lb.
311 head, above ages, averaging round—
803....$19.20—2 4-10c. per lb.

OXEN.

6 head, 3 yokes.
1 pair....2400....$47.00
1 pair....1800.... 46.50
1 pair....2400.... 49.00

Average.....2200 47.50—2 1-6c. per lb.

FAT COWS.

4 head....950....$19.00—2c. per lb.

MILCH COWS AND CALVES.

3 head.
1.... 900.. .$18.50
1.... 900.... 21.00
1.... 800.... 16.00

Average. 867 18.50—2½c. per lb.
Total number sold, 321 head.
Amount of sales, $6,300.

77th Sale—July 1st, 1862.

CATTLE.

94 head, 3 years, 3 lots.
3....1130....$33 00
30....1125.... 33 90
61....1025.... 26 10

Average..1092 28 81—2⅝ cts. per lb.
173 head, 2 years, 8 lots.
18.... 750....$15 10
12.... 825.... 16 87
28.... 850.... 20 37
26.... 850.... 20 20
25.... 990.... 25 75
9.... 900.... 24 00
25.... 900.... 22 50
30.... 760.... 14 00

Average.. 852 20 00—2⅜ cts. per lb.
143 head, 1 year, 7 lots.
18.... 703. .$15 12
23.... 630....11 65
11.... 560....12 05
36.... 600....13 00
7.... 575....13 60
8.... 575....10 50
40(1&2)750....15 33

Average.. 654 13 46—2 cts. per lb.
410 head, above ages, averaging round—
831...$19 65—2⅜ cts. per lb.

MILCH COWS AND CALVES.

8 head.
1............$27 00
1.............22 50
1....1200....32 00
1....1100....21 75
1....1050....18 00
1....1200....20 00
1....1000....23 00
1....1100....19 12

Average..1108 22 92—2 cts. per lb.
Total number of cattle sold, 418 head.
Amount of sales, $8,200.

78th Sale—August 5th, 1862.

CATTLE.

183 head, 3 years, 3 lots.
18....1100...$29 25
63....1000....25 00
102....1100....30 00

Average..1066 29 32—2¾ cts. per lb.
137 head, 2 years, 9 lots.
8.... 950...$25 00
7.... 850....12 50
31.... 925....20 85
25.... 655....20 00
19.... 575....11 90
14.... 750....12 25
8.... 930....20 60
24.... 950....22 50
1.... 600....12 00

Average.. 809 18 60—2 3-10 cts. per lb.
247 head, 1 year, 10 lots.
17.... 550...$10 50
12.... 600....12 50
12.... 530....12 75
19.... 500....10 00
30.... 650....14 00
21.... 525....10 70
17.... 550....11 25
40.... 650....13 80
58.... 550....15 50
21.... 522....10 10

Average.. 570 12 83—2 3-10 cts per lb.
567 head, above ages, averaging round—
788...$19 38—2½ cts. per lb.

CALVES.

4 head..150...$5 00—3⅓ cts. per lb.

OXEN.

4 head—2 yokes.
1 pair..2900..$73 00
1 pair..2400...75 00

Average... 2650 74 00—2 8-10 cts. per lb.

FAT COWS.

12 head.
1....1175
10.... 900....$15 00
1....1030

Average.. 934 15 00—1 6-10 cts. per lb.

SHEEP.

117 stock sheep.................$2 40
21 wethers.................... 2 00

138 head, averaging 2 20
Total number of cattle sold, 583 head.
Total number of sheep sold, 138 head.
Amount of sale, $11,600.

79th Sale—September 2d, 1862.

CATTLE.

164 head, 3 years, 4 lots.
7.... 900...$16 00
95....1150....27 00
22.... 925....18 75
40....1100....29 00

Average..1079 25 90—2 4-10 cts. per lb.
69 head, 2 years 3 lots.
4 (heif.) 750..$10 50
38....... 1025...23 00
27....... 775...12 00

Average .... 911 18 00—2 cts per lb.
127 head, 1 year, 6 lots.
4.... 800...$15 50
12.... 700....10 87
28.... 710....12 50
41.... 685....11 50
28.... 650....10 40
14.... 675.... 6 80

Average.. 676 11 03—1 6-10 cts. per lb.
360 head, above ages, averaging round—
912...$19 14— at 2 cts. per lb.

CALVES.

29 head—3 lots.
5............$3 00
10.... 575.... 6 75
14............ 9 25

Average.. 575 7 31—1 3-10 cts. per lb.

OXEN.

6 head—3 yokes.
1 pair..2500..$60 00
1 pair..3200..110 50
1 pair..3100.. 65 50

Average... 2933 82 00—2 8-10 cts. per lb.

FAT COWS.

8 head.. 900..$15 50—1 7-10 cts. per lb.

MILCH COWS AND CALVES.

1 head.......$20 00

Total number of cattle reported sold, 404 hd.
Amount of sales, $7,500.

REMARKS.—Over 200 head, good quality, Kentucky cattle, in market. Severe drouth—pastures nearly ruined. Some 200 head not offered. Very heavy sale.

80*th Sale—October* 7*th*, 1862.

CATTLE.

47 head, 3 years, 3 lots.
18........1050..$24 00
6........1250...31 50
22 (4 yrs.) 1100...22 00
1 (ox)...1600...47 50

Average.......1111 24 44—2 2-10c. per lb.

107 head, 2 years, 4 lots.
25........ 750..$14 00
25........ 850... 14 10
42........ 975... 21 00
15........ 925...

Average....... 886 17 22—2 cts. per lb.

41 head, 1 year, 4 lots.
7......... 760..$11 55
8......... 550... 8 50
13 (1 & 2) 700... 14 70
13 (1 & 2) 725... 8 00

Average....... 700 10 78—1 6-10c. per lb.

195 head, above ages. averaging round—
900 $17 63—2 cts. per lb.

CALVES.

5 head ... 350 $4 05—1 2-10c. per lb.

OXEN.

4 head—2 yokes.
1 pair.... 2700.. $72 00
1 pair.... 2400... 63 00
1 pair.... 2500... 62 00
1 pair.... 2900... 87 25

Average.......2625 71 06—2 8-10c. per lb.

MILCH COWS AND CALVES.

3 head.
1............. $20 00
1............ .....
1......... 900 20 00

Average...... 900 20 00—2 2-10c. per lb.

SHEEP.

154 head....................$2 67

Total number of cattle sold, 205 head.
Total number of sheep sold, 154 head.
Amount of sales, $4,000.

REMARKS.—Quite a number in market not offered.

RECAPITULATION—1862—*Showing the number sold (as per report) of each age and kind; also number of lots in which offered, of* 3, 2 *and* 1 *year olds, and the total number of cattle—all ages—with the total number of stock of all kinds.*

MONTHS. 1862.	CATTLE.														OTHER STOCK.				Total stock of all kinds.
	3 years.	No. of lots.	2 years.	No. of lots.	1 year.	No of lots.	3, 2 and 1 year.	No. of lots.	Calves.	Oxen.	Fat cows.	Milch cows and calves.	Bulls.	Total cattle all kinds.	Horses.	Mules.	Sheep.	Hogs.	
January	....	..	34	2	84	4	118	6	..	..	..	3	..	121	..	..	....	..	121
February	26	2	89	4	70	4	185	10	6	3	1	3	..	198	..	..	....	..	198
March	216	10	117	6	64	3	397	19	..	8	..	2	..	407	..	..	....	..	407
April	101	7	98	8	37	4	236	19	..	2	..	4	..	242	..	..	....	..	242
May	105	7	87	7	36	2	227	16	..	6	..	1	..	234	..	..	8	15	257
June	125	4	86	6	100	8	311	18	..	3	1	3	..	318	..	..	....	.	318
July	94	3	173	8	143	7	410	18	..	..	..	8	..	418	..	..	....	..	418
August	183	3	137	8	247	10	567	21	4	2	12	....	..	585	..	..	135	..	723
September	164	4	69	3	127	6	360	13	29	3	8	1	..	401	..	..	....	..	401
October	47	3	107	4	41	4	195	11	5	2	..	3	..	205	..	..	154	..	359
November*	....	..	....	..	....	..	....	...	..	..	..	....	..	....	..	..	....	..	....
December*	....	..	....	..	....	..	....	...	..	..	..	....	..	....	..	..	....	..	....
Total	1061	43	996	56	949	52	3006	151	44	29	22	28	..	3129	..	..	300	15	3444
Average for month	118	..	100	..	89	..	300	...	..	..	..	....	..	313	..	..	....	..	344

* No report of sale.

Table—*Showing the average prices of the different ages of cattle, with average estimated weights (given by best judges, which are proven about correct) and the average price per hundred pounds of all ages, separately; also average of 1, 2 and 3 year old cattle together, for each month of 1862, and total average for the year of all kinds, with the addition of the averages of all other stock reported monthly, and total for the year. Also amounts of "cash sales" monthly, and total.*

Months of 1862.	CATTLE.											
	3 yrs. lbs.	3 yrs. Price.	3 yrs. cts.	2 yrs. lbs.	2 yrs. Price.	2 yrs. cts.	1 yr. lbs.	1 yr. Price.	1 yr. cts.	3, 2, &1 yr. lbs.	3, 2, &1 yr. Price.	3, 2, &1 yr. cts.
January ..	......	......	......	875	$17·77	2	722	$14.00	1 9-10	765	$15.09	2
February .	988	$22.06	2¼	743	14.71	2	692	14.21	2 1-10	790	15.55	2
March	937	24.80	2 6-10	628	12.75	2	456	12.31	2 7-10	771	19.23	2½
April	886	21.43	2 4-10	645	13.30	2	400	10.33	2 6-10	709	16.34	2 3-10
May	1020	24.68	2 4-10	628	15.88	2½	500	11.00	2 2-10	825	19.16	2⅓
June......	1096	29.00	2⅝	742	15.09	2	492	10.63	2⅙	803	19.20	2 4-10
July	1092	28 81	2⅝	852	20.00	2⅓	654	13.46	2	831	19.65	2⅓
August....	1066	29.32	2¾	809	18.60	2 3-10	570	12.83	2 3-10	788	19.35	2½
September.	1079	25.90	2 4-10	911	18.00	2	676	11·03	1 6-10	912	19.14	2
October...	1111	24.44	2 2-10	886	17.22	2	700	10.78	1 6-10	900	17.63	2
November.	......	......	......	......	......	......	......	......	......	......	......	......
December .	......	......	......	......	......	......	......	......	......	......	......	......
Total aver.	1031	25.60	3½	772	16.33	2 1-5	586	12.06	2⅛	819	18.04	2¼

Months of 1862.	CATTLE.								
	Calves. lbs.	Calves. Price.	Calves. cts.	Oxen. lbs.	Oxen. Price.	Oxen. cts.	Fat cows. bs.	Fat cows. Price.	Fat cows. cts.
January....	....	....	....	....	....	....	....	....	....
February...	400	$8.67	2⅙	2333	$67.92	3	1300	$40.00	3
March......	....	....	....	2121	52.85	2½	....	....	....
April	....	....	....	2000	53.75	2 1-10	....	....	....
May........	....	....	....	2700	79.17	3	....	....	....
June	....	....	....	2200	47.50	2⅙	950	19.00	2
July	....	....	....	....	....	....	....	....	....
August	150	5.00	3⅓	2650	74.00	2 8-10	934	15.00	1 6-10
September..	575	7.31	1 3-10	2933	82.00	2 8-10	900	15.50	1 7-10
October	350	4.05	1 2-10	2625	71.06	2 8 10	....	....	....
November..	....	....	....	....	....	....	....	....	....
December ..	....	....	....	....	....	....	....	....	....
Total aver..	392	6.26	2	2445	66.03	2¾	1021	24.88	2½

Months of 1862.	CATTLE.						OTHER STOCK.				Amount of Sales.
	Milch cows. lbs.	Milch cows. Price.	Milch cows. cts.	Bulls. lbs.	Bulls. Price.	Bulls. cts.	Horses.	Mules.	Sheep.	Hogs.	
January	1100	$18.36	1 7-10	......	......	......	......	......	......	......	$1,800
February	1300	24.33	1⅞	......	......	......	......	......	......	......	3,200
March	......	15.13	......	......	......	......	......	......	......	......	8,200
April	875	19.56	2 2-10	......	......	......	......	......	......	......	4,100
May	......	90.00	......	......	......	......		......	$1.95	$2.15	5,200
June	867	18.50	2⅛	......	......	......	......	......	......	......	6,300
July	1108	22.92	2	......	......	......	......	......	......	......	8,200
August	......	......	......	......	......	......	......	......	2.20	......	11,600
September	......	20.00	......	......	......	......	......	......	......	......	7,500
October	900	20 00	2 2-10	......	......	......	......	......	2·67	......	4,000
November	......	......	......	......	......	......	......	......	......	......	......
December	....	......	......	......	......	......	......	......	......	......	......
Total aver.	1025	19.81	2	......	......	......	......	......	2.41	2.15	60,100
Average per month											6,010

83*d Sale—Jan.* 6*th*, 1863.

CATTLE.

34 head, 3 years, 2 lots.
4.... 800....$18 00
30....1120.... 29 50
Average..1083 28 12—2 6-10 cts. per lb.

28 head, 2 years, 2 lots.
14.... 925....$17 25
14.... 925.... 20 25
Average.. 925 18 75—2 cts. per lb.

38 head, 1 year, 2 lots.
25.... 750....$14 00
13.... 800.... 14 00
Average.. 767 14 00—1 8-10 cts. per lb.

100 head, above ages, averaging round—
919....$20 14—2 2-10 c. per lb.

OXEN.

6 head—3 yokes.
1 pair..2400....$76 00
1 pair..3400.... 70 50
1 pair..3400.... 95 00
Average....2733 80 50—3 cts. per lb.

MILCH COWS AND CALVES.

3 head.
1..............$14 75
1.............. 15 50
1.............. 22 75
Average............ 17 67

SHEEP.

43 head $2 76

Total number cattle sold, 109 head.
Total number sheep sold, 43 head.
Total amount of sales, $2,500.

84*th Sale—Feb.* 3*d*, 1863.

CATTLE.

3 years—none offered
50 head, 2 years, 2 lots.
7.... 800....$18 10
43....1000.... 28 00
Average... 972 26 61—2 7-10 cts. per lb

13 head, 1 year, 2 lots.
5...... 600....$10 65
8 (st&h) 600.... 7 00
Average... 600 8 40—1 4-10 c. per. lb.

63 head, above ages, averaging round—
895 23 00—2½ cts. per lb.

BULLS.

1 head...1300 $21 75—1 7-10 c. per lb.

SHEEP.

129 head.........$3 04½

Number of cattle reported, 64 head.
Number of sheep reported, 129 head.
Amount of sales, $2,000.

Remarks.—Extremely cold weather, and very bad roads induced a light attendance of both buyers and sellers.

85*th Sale—March* 3, 1863.

CATTLE.

83 head, 3 years, 3 lots.
25.... 800....$20 20
45....1000.... 32 50
13....1050.... 30 00
Average.. 948 28 40—3 cts. per lb.

67 head, 2 years, 1 lot
67.... 600 $21 00—3½ cts.

9 head, 1 year, 1 lot.
9.... 500....$14 30—2 9-10 cts. per lb.
159 head, above ages, averaging round—
776 $24 49—3 1-6 cts. per lb.

FAT COWS.

14 head, 3 lots.
6....1000....$20 00
5....1000.... 20 15
3............ 3 00 per hundred.

Average..1000.... 20 07—2 2-10 cts. per lb.
Number of cattle sold, 173 head.
Amount of sales, $4,200.

86th Sale—April 7th 1863.

CATTLE.

48 head, 3 years, 3 lots.
10........ 700...$20 35
31........1000....22 88
7........ 725....22 00

Average...... 900 22 22—2¼ cts. per lb.
40 head, 2 years, 2 lots.
29........ 525....$3 05
11........ 825....24 55

Average...... 607 16 21—2⅝ cts. per lb.
32 head, 1 year, 3 lots.
5 (heif.). 600...$11 50
26........ 450....14 75
1.................23 05

Average...... 474 14 50—3 cts. per lb.
120 head, above ages, averaging round—
689 $18 16—2⅝ c. per lb.

OXEN.

10 head—5 yokes.
1 pair, 2-yr. bulls..1300...$38 45
1 pair ....2000... 89 00
1 pair ....2000... 90 00
1 pair ....2000... 71 50
1 pair ....2850...127 50

Average...........2020 83 29—4⅛c. p. lb.

FAT COWS.

8 head.
7.... 800...$13 30
1............23 05

Average.. 800 14 50—1 8-10 c. per lb.

BULLS.

1 head....1300....$30 25—2⅜c. per lb.

SHEEP.

73 head..............$3 95
Number of cattle sold, 139 head.
Number of sheep sold, 73 head.
Amount of sales, $3,000.

87th Sale—May 5th, 1863.

CATTLE.

108 head. 3 years, 3 lots.
45....1000....$32 50
11.... 900.... 29 20

Average.. 980 31 85—3¼ c. per lb.
129 head, 2 years, 6 lots.
5.... 900....$23 00
9.... 500.... 18 00
44.... 600.... 16 20
23.... 500.... 11 75
23.... 550.... 17 35
25.... 650.... 20 00

Average.. 588 16 66—2 8-10c. per lb.
7 head, 1 year, one lot.
7.... 700....$10 50—1½c. per lb.
244 head, above ages, averaging round—
721 $21 36—3c. per lb.

OXEN.

6 head—3 yokes.
3 pair —— ——

FAT COWS.

15 head . 700....$18 80—2 7-10c. per lb.

SHEEP.

200 head $6 70
20 head 3 50

220 head—average 6 40
Number of cattle sold, 265 head.
Number of sheep sold, 220 head.
Amount of sales, $7,200.

88th Sale—June 2d, 1863.

CATTLE.

83 head, 3 years, 3 lots.
26.... 850....$22 50
13.... 950.... 12 00
44.... 850.... 25 00

Average.. 819 22 18—2 7-10c. per lb.
207 head, 2 years, 9 lots.
18.... 800....$34 00
22.... 700.... 18 00
29.... 850.... 25 35
7.... 600.... 12 25
38.... 800.... 22 25
18.... 825.... 27 60
22.... 650.... 18 00
17.... 600.... 14 00
35.... 700.... 24 00

Average.. 742 22 55—3c. per lb.
52 head, 1 year, 2 lots.
34.... 550....$16 00
18.... 350.... 10 00

Average.. 481 14 00—3c. per lb.
342 head, above ages, average round—

OXEN.

8 head—4 yokes.
1 pr........2400...$70 00
1 pr., 3 yrs..1400... 47 25
1 pr., 9 yrs..2800... 66 00
1 pr., 3 yrs..2550...100 00

Average ... 2288 70 81—3 1-10c. per lb.

FAT COWS.

87 head, 3 lots.
11.... 875....$19 25

25....1000....$24 00
51.... 850.... 25 00

Average.. 896 22 84—2½c. per lb.

MILCH COWS AND CALVES.

3 head.
1....1000....$24 00
1.... 900.... 25 00
1............ 25 50

Average.. 975.... 24 50—2½c. per lb.

BULLS.

1 Durham, 3 years..............$36
Number of cattle reported sold, 441 head.
Amount of sales, $10,000

89*th Sale—July 7th*, 1863.

No report. News of the "fall of Vicksburg," and "battle of Gettysburg," caused so much excitement that no business of importance was done.

A few lots sold; several withdrawn.

90*th Sale—August* 4*th*, 1863.

CATTLE.

141 head, 3 years, 5 lots.
15....1000....$19.00
15............ ....
30....1100.... 24.65
60............ No bid.
21....1300.... 40.00

Average..1141 28.25—2 4-10c. per lb.
56 head, 2 years, 3 lots.
15.... 800....$15.75
25.... 800.... 14.00
16............ No bid.

Average.. 800 14.65—1 8-10c. per lb.
33 head, 1 year, 3 lots.
23.... 600....$16.00
4.... 600.... 10.80
6.... 400.... 10.00

Average.. 594.... 14.28—2 4-10c. per lb.
230 head, above ages, averaging round—
906....$21 02—2½c. per lb.

MILCH COWS AND CALVES.

3 head.
1 ....$24.50
1 .... 18.00
1 .... 16.00

Average 19.50
Number reported in market, 233 head.
Amount of sales, $5,800.

REMARKS.

Some 200 head in market not offered, owing to the dullness of market; many disposed of at private sale at advanced figures; great drouth prevalent, causing low rates and dull times.

91*st Sale—September* 1*st*, 1863.

CATTLE.

3 years, none offered.
65 head, 2 years, 3 lots.
23.... 900....$17.65
27.... 800.... 15.60
15.... 950.... 20.00

Average.. 870 17.34—2c. per lb.
1 year, none offered.
65 head, above 2-yr. olds, averaging round—
870....$17.34—2c. per lb.

OXEN.

4 head, 2 yokes.
1 pair....1700....$88.00
1 pair....1700.... 90 00

Average .....1700 89.00—5¼c. per lb.

MILCH COWS

5 head.
1 ....$17.00
1 .... 14.00
3 .... 10.25

Average 12.35

SHEEP.

106 head....................$1 66
103 " 2.40

209 head, averaging 2.15
Number of cattle reported, 73 head.
" sheep " 209 "
Amount of sales, $1,800.

92*d Sale—October* 6*th*, 1863.

No sale. "Cattle Sales," falling on election day, was postponed. The importance of everybody's being at home to vote, was recognized as sufficient reason for no sale in October.

93*d Sale—November* 3*d*, 1863.

CATTLE.

159 head, 3 years, 4 lots.
30....1100....$30.05
33....1300.... 36.05
46....1200.... 33.80
50............No bid.

Average..1202 33.45—2¾c. per lb.
137 heads, 2 years, 4 lots.
9....1800....$18.00
45....1000.... 22.25
49.... 850.... 17.90
34....1100.... 33.05

Average..1024 23.09—2½c. per lb.
14 head, 1 year, 2 lots.
3.... 800....$16.75
11.... 750.... 15.00

Average. 760 15.38—2½c. per lb.
310 head, above ages, averaging round—
1085....$27.02—2½c. per lb.

CALVES.

13 head, 2 lots.
8 ....$5.00
5 .... 8.30

Average 6.27

OXEN.

6 head, 3 yokes.
1 pair....2400....$60.00
1 pair....3000.... 65.00
1 pair....3600.... 85.00

Average ...3000 70.00—2½c per lb.

SHEEP.

37 head $2.97
102 " 3.15
10 " 2.55
100 " 2.01
100 " 3.15
24 " 2.91

373 head, averaging 2.80
Total number cattle reported, 329 head.
" " sheep " 373 "
Amount of sales, $10,000.

94*th Sale—December* 1*st*, 1863.

CATTLE.

43 head, 3 years, 1 lot.
43....1100.... $30.00—2 7-10c. per lb.
23 head, 2 years, 2 lots
12....1000....$22.50
11.... 900.... 17.95

Average.. 952 20.32—2½c. per lb.
1 year, none in market.
66 head, above ages, averaging round—
1050....$26.60—2½c. per lb.

CALVES.

1 ....$6.50

MILCH COWS AND CALVES.

3 head.
1 ....$16.05
1 .... 20.50
1 .... 14.00

Average 16.85
Number of cattle reported sold, 69 head.
Amount of sales, $1,800.

REMARKS.

Corn and hay very high, great shipping demand for army use; stock ruling low in consequence. However, prices of neat stock are closing this year (the gloomiest of the war) at just about same averages as at the early sales.

RECAPITULATION—1863—*Showing the number sold (as per report) of each age and kind; also, number of lots in which offered of* 3, 2 *and* 1 *year olds, and the total number cattle, all ages, with the total number of stock of all kinds.*

	CATTLE.														OTHER STOCK.				
MONTHS.	3 years.	No. lots.	2 years.	No. lots.	1 year.	No. lots.	3, 2 and 1 year.	No. lots.	Calves.	Oxen.	Fat cows.	Milch cows.	Bulls.	Total cattle.	Horses.	Mules.	Sheep.	Hogs.	Total all stock.
1863.																			
January	34	2	28	2	38	2	100	6	..	6	...	3	..	109	..	..	43	...	152
February	....	..	50	2	13	2	63	4	..	..	...	....	1	64	..	..	129	..	193
March	83	3	67	1	9	1	159	5	..	..	14	....	..	173	..	..	....	...	173
April	48	3	40	2	32	3	120	8	..	10	8	....	1	139	..	..	73	...	212
May	108	3	129	6	7	1	244	10	..	6	15	....	..	265	..	..	220	...	485
June	83	3	207	9	52	2	344	14	..	8	87	3	1	441	..	..	....	...	441
July*	....	..	....	..	....	..	....	..	..	..	...	....	..	....	..	..	....	...	....
August	141	5	56	3	33	3	230	11	..	..	...	3	..	233	..	..	....	...	233
September	....	..	65	3	....	..	65	3	..	4	...	5	..	74	..	..	209	...	283
October †	....	..	....	..	....	..	....	..	..	..	...	....	..	....	..	..	....	...	....
November	159	4	137	4	14	2	310	10	13	6	...	....	..	329	..	..	373	...	702
December	43	1	23	2	....	..	66	3	..	..	...	3	..	69	..	..	....	...	69
Total	699	24	802	34	198	10	1699	74	13	40	124	17	3	1896			1047		2943
Average per month	88		80		25		170							190			173		294

* Fall of Vicksburg news.

† State Election.

TABLE—*Showing the average prices of the different ages of cattle, with the average weights (given by best judges, which are proven about correct,) and the average price per hundred pounds of all ages, separately; also, average of 1, 2, and 3 year old cattle together, for each month of 1863, and total average for the year of all kinds, with the addition of the averages of all other stock reported, monthly and total for the year; also, amount of "cash sales," monthly and total.*

MONTHS.	CATTLE.											
	3 yrs. lbs.	3 yrs. Price.	3 yrs. cts.	2 yrs. lbs.	2 yrs. Price.	2 yrs. cts.	1 yr. lbs.	1 yr. Price.	1 yr. cts.	3, 2 & 1yr. lbs.	3, 2 & 1yr. Price.	3, 2 & 1yr. cts.
1863.												
January ..	1083	$28 12	2 6-10	925	$18 75	2	767	$14 00	1 8-10	919	$20 14	2 2-10
February .	......	......	......	972	26 61	2 7-10	600	8 40	1 4-10	895	23 00	2½
March	948	28 40	3	600	21 00	3½	500	14 30	2 3-10	776	24 49	3 1-6
April	900	23 22	2½	607	16 21	2 2-3	474	14 50	3	689	18 16	2 2-3
May	980	31 85	3¼	588	16 66	2 8-10	700	10 50	1½	721	21 36	3
June......	819	22 18	2 7-10	742	22 55	3	481	14 00	3	721	21 15	3
July *. ..	......	......	......	......	......	......	......	......	......	......	......	......
August ...	1141	28 25	2 4-10	800	14 65	1 8-10	594	14 28	2 4-10	906	21 02	2½
September.	......	......	......	870	17 34	2	......	......	......	800	17 34	2
October †..	......	......	......	......	......	......	......	......	......	......	......	......
November.	1202	33 45	2¾	1024	23 09	2¼	760	15 38	2¼	1085	27 02	2½
December .	1100	30 00	2 7-10	952	20 32	2⅛	......	......	......	1050	26 60	2½
Av. per mo.	1021	38 06	2 5-8	808	19 52	2 4-10	609	13 17	2⅛	843	22 03	2 6-10

TABLE—*Showing the average price of cattle for* 1863—Continued.

MONTHS.	CATTLE.								
	Calves. lbs.	Calves. Price.	Calves. cts.	Oxen. lbs.	Oxen. Price.	Oxen. cts.	Fat cows. lbs.	Fat cows. Price	Fat cows. cts.
1863.									
January....	......	......	......	2733	$80 50	3	......	......	......
February...	......	......	......	......	......	......	......	......	......
March......	......	......	......	......	......	......	909	$20 07	2 2-10
April......	......	......	......	2020	83 29	4 1-6	800	14 50	1 8-10
May.......	......	......	......	......	......	......	700	18 80	2 7-10
June	......	......	......	2288	70 81	3 1-10	896	22 84	2½
July *......	......	......	......	......	......	......	......	......	......
August.....	......	......	......	......	......	......	......	......	......
September..	......	......	......	1700	89 00	5¼	......	......	......
October †...	......	......	......	......	......	......	......	......	......
November..	......	$6 27	......	3000	70 00	2½	......	......	......
December ..	......	6 50	......	......	......	......	......	......	......
Total av'age		6 39	—	2350	78 46	3 3-5	826	19 55	2 3-10

* Fall of Vicksburg news.

† Election for Governor.

TABLE—*Showing the average price of cattle for* 1863—Continued.

MONTHS.	CATTLE.						OTHER TOCK.				
	Milch cows. lbs.	Milch cows Price.	Milch cows. cts.	Bulls. lbs.	Bulls. Price.	Bulls. cts.	Horses.	Mules	Sheep	Hogs.	Amount of sales.
1863.											
January ..	......	$17 67	......	......	......	......	....	......	$2 67	......	$2,500
February .	......	......	......	1300	$26 75	1 7-10	....	......	3 04½	......	2,000
March	......	......	......	......	......	......	....	......	......	......	4,200
April.....	......	......	......	1300	30 25	2⅛	....	......	3 93	......	3,000
May	......	......	......	......	......	......	....	......	6 40	......	7,200
June......	975	24 50	2½	......	36 00	......	....	......	......	......	10,000
July	......	......	......	......	......	......	....	......	......	......	....
August ...	......	19 50	......	......	......	......	....	......	......	......	5,800
September	......	12 35	......	......	......	......	....	......	2 15	......	1,800
October..	......	......	......	......	......	......	....	......	......	......	....
November	......	......	......	......	......	......	....	......	2 80	......	10,000
December	......	16 85	......	......	......	......	....	......	......	......	1,800
Total aver.	975	18 17	2½	1300	29 50	2			3 51		48,300
							Total average per month............				4,830

95th Sale—October 5th, 1864.

CATTLE.

3 years—none.
7 head (2 yrs.)..700..$16 55—2½ cts. per lb.

REMARKS.—Very severe weather caused slim attendance of cattle and people.

96th Sale—February 2d, 1864.

CATTLE.

3 years—none reported.
38 head, 2 years, 2 lots.
18....1000....$25 50
20.... 700.... 19 25
Average.. 843 $22 22—2 6-10
22 head, 1 year, 2 lots.
10....700....$19 50
12....500.... 11 50
Average..600 $15 14—2½ cts. per lb.
60 head, above ages, average round—
750....$19 61—2 6-10c. per lb.

OXEN.

10 head, 5 yokes.
1 pair ....2800....$140 00
1 " (3 yrs)..1900.... 81 00
1 " (3 yrs)..2000.... 85 00
1 " ....2400.... 99 00
1 " (3 yrs)..1800.... 61 00
Average...........2180 $93 33—4½c.p.lb.

FAT COWS.

1 head..................................$17 50

MILCH COWS AND CALVES.

1 head......................................$35 00
Number of cattle reported, 72 head.
Amount of sales, $1,800.

REMARKS.—With the beginning of this year dates the first material advance of cattle at our sales: high prices of feed are beginning to be felt, and causing an advance. The war demand takes all the surplus. A large number of horses were sold for army use at remunerative prices.

97th Sale—March 1st, 1865.

CATTLE.

3 years—none reported.
41 head, 2 years, 3 lots.
16............ 700....$19 50
8 (half).....800.... 21 25
17.............800.... 25 20
Average........... 760 $22 20—3c. per lb.
29 head, 1 year, 3 lots.
3......600......$16 33
7......550...... 12 26
19......400...... 13 75
Average....458 $13 66—3c. per lb.
70 head, above ages, average round—
635 $18 66—3c. per lb.

OXEN.

18 head, 9 yokes.
1 pair (2 yrs..1200..$48 00
1 " ....3000.. 126 00
1 " ....3500.. 130 00
1 " ....3000.. 130 00
1 " ....2200.. 80 00
1 " ....2400.. 104 20
1 " (2 ys).1450.. 48 80
1 " ....2700.. 122 00
1 " ....2500.. 119 50
Average.........2440 $100 95—4 1-6c. p. lb.

MILCH COWS AND CALVES.

2 head.

1	$27 50
1	29 00
Average	$28 25

Number of cattle sold, 90 head.
Amount of sales, $2,500

REMARKS.—Many horses sold at auction and private sale for army purposes.

98*th Sale—April* 5*th*, 1864.

CATTLE.

91 head, 3 years, 5 lots.

6	550	$15 07
16	700	21 00
23	800	31 00
21	800	31 00
25	1000	34 25
Average	755	$29 00—3 8-10c. per lb.

64 head, 2 years, 5 lots.

14	700	$28 80
20	700	25 00
5	500	18 25
2	600	25 50
10		14 80
13	600	21 25
Average	654	$22 96—3½c. per lb.

57 head, 1 year, 4 lots.

21	400	$14 15
7		10 50
19	400	11 25
10	1050	10 30
Average	530	$12 07—2¼c. per lb.

212 head, above ages, average round—
670 $22 59—3 4-10c. per lb.

OXEN.

8 head, 4 yokes.

1 pair	1800	$70 25
1 “	2100	98 00
1 “	2000	81 50
1 “	2400	100 00
Average	2075	$87 44—4 2-10c. per lb.

FAT COWS.

15 head, 5 lots.

4	$18 00
3	15 00
3	21 55
2	38 55
3	18 50
Average	$20 95

MILCH COWS AND CALVES.

5 head.

1	$65 00
2	18 50
1	25 25
1	25 70
Average	$30 60

SHEEP.

26 head at $2 25 per head.

Total number of cattle sold, 240 head.
“ “ sheep “ 26 “
Amount of sales, $6,000.

REMARKS.—Several hundred head of "scallawags" in market, not wanted in this valley at *any price*, either not offered or withdrawn. A very large business done in horses and other trades, with a heavy attendance of both buyers and sellers.

99*th Sale—May* 3*d*, 1864.

CATTLE.

25 head, 3 years, 2 lots.

5	700	$26 25
20 (3 & 4)	1100	50 00
Average	1020	$45 25—4 4-10c.p.lb

41 head, 2 years, 4 lots.

10	600	$15 05
8	500	15 54
22	650	29 00
1 (heif.)		13 50
Average	608	$22 60—3 7-10c.

8 head, 1 year, 3 lots.

2	725	$16 00
2		.....
4 (heif.)		8 25
Average	725	$10 83—1½c. per lb.

74 head, above ages, average round—
765 $29 48—3 9-10c. per lb.

FAT COWS.

2 head.

1	$26 25
1	28 00
Average	$27 13

MILCH COWS AND CALVES.

1..............................$28 75

BULLS.

1....600....$19 50—3¼ cts. per lb.

Number of cattle reported, 78 head.
Amount of sales, $2,200.

100*th Sale—June* 7*th*, 1864.

CATTLE.

3 years—none in market.
32 head, 2 years, 1 lot.
32....700....$21 90—3⅛c. per lb.
2 head, 1 year, 1 lot.
2..............................$10 75
34 head, above ages, average round—
700....$21 25—3 1-10c. per lb.

MILCH COWS AND CALVES.

2 head.

1	$40 00
1	38 00
Average	$39 00

Number of cattle reported, 36 head.
Amount of sales only, $800.

REMARKS.—A large number of buyers from adjacent counties, but no sellers; pastures very fine, and cattle advancing very fast east and west. Those owning cattle think best to hold on and graze awhile.

101*st Sale—July* 5*th*, 1864.

CATTLE.

41 head, 3 years. 2 lots.
8 (corn fed) 1,400....$55 25
33 no bid.

Average........ 1,400 55 25—3 9-10c.
134 head, 2 years, 6 lots.
25......1,200....$49 50
14...... 700.... 30 00
35...... 950.... 39 00
35...... 800.... 34 00
13
12 (heif) 800.... 24 00

Average.... 940 37 20—4c. per lb.
18 head, 1 year, 2 lots.
16 ......$20 50
2 (heif) 8 00

Average.... 19 11
193 head, above ages—average round.
944....$36 00—3 7-10c. per lb.

OXEN.

12 head, 6 yokes.
1 pr..................$91 00
1 pr. (2 yrs.) 1,500.... 91 00
1 pr.........2,200....100 00
1 pr.........2,200....113 00
1 pr.........3,000....113 50
1 pr.........2,500.... 80 75

Average...... 2,230 98 21—4 3-10c.

FAT COWS.

21 head.
2....1000.... $31 50
17.... .... 18 50
2.... .... 15 00

Average. 1000 19 40—1 9-10c. per lb.

MILCH COWS AND CALVES.

4 head.
1...............$28 00
1............... 33 00
1............... 30 00
1............... 20 00

Average........... 27 75
Number of cattle sold, 230 head.
Amount of sales, $8,500.

REMARKS.—Oxen for last few months are in demand, and high in price; many good, heavy yokes coming in from north to supply our farmers. 100 to 260 Hardin co. cattle not sold; our blue grass does not agree with them, at any rate our graziers don't buy them. The advance in cattle is considerable since first of year; higher *now* than ever before in this market.

102*d Sale—August* 2*d*, 1864.

CATTLE.

33 head, 3 years, 3 lots.
1 (heif)..........$31 55
14 (rough) 730.... 17 00
18......... 700....$17 00

Average....... 722 17 44—2 4-10c. p. lb.
64 head, 2 years, 6 lots.
18......... 760....$25 00
4......... 800.... 46 00
13.........1100.... 54 75
6......... 500.... 15 05
11......... 500.... 12 50
12 (heif).. .... 14 20

Average....... 762 27 25—3 6-10c. p. lb.
7 head, 1 year, 3 lots.
2 (heif).........$13 75
5................ 20 00
2......500..... 12 50

Average...500 17 00—3⅛c. per lb.
106 head, above ages—average round.
735.....$23 32—3 1-6c. per lb.

OXEN.

4 head, 2 yokes.
1 pair, 3,600....$160 00
1 pair, 2,500.... 101 00

Average.. 3,050 130 50—4⅛c. per lb.

FAT COWS.

13 head.
1 (heif)..........$21 00
11 (aged cows)... 16 00
1................ 26 00

Average.............. 27 15

MILCH COWS AND CALVES.

4 head.
1................$35 50
1................ 43 50
1................ 30 00
1................ 34 75

Average.............. 35 94

BULLS.

1....1,700....$35 00—2c. per lb.
Number of cattle sold, 128 head.
Amount of sales, $3,200.

REMARKS.—The thirteen 1100 lb. 2 year old steers, were short-horns raised by James Rankin, Esq., and were purchased by Jesse Rea, Esq., one of our oldest. large graziers, at $54 75 each, being considered the *best lot* of their age ever raised in "old Madison."

103*d Sale—September* 6*th*, 1864.

CATTLE.

10 head, 3 years, 1 lot.
10....1,000....$40 00—4c.
154 head, 2 years, 10 lots.
8.......... 800....$27 10
8 (variety)......... 18 00
13..........1,015.... 59 29
4.......... 650.... 22 75
16.......... 700.... 15 00
15..........1,100.... 55 75
24..........1,000.... 30 25
25.......... 800.... 19 00

11..........1,000....$40 00
30.......... 950.... 39 15

Average........ 914 33 21—3 6-10c.
54 head, 1 year, 5 lots.
10.......400....$13 80
7.......700.... 25 00
18.......500.... 16 75
8.......650.... 15 87
11 (heif) 550.... 13 65

Average.... 568 16 51—3c. per lb.
218 head, above ages—average round.
822....$30 00—3 2-3c. per lb.

CALVES.

5 head.................$12 00

OXEN.

2 head, 1 yoke.
1 pair, 2,900....$200 00

FAT COWS.

2 head.
1....1,100....$34 05
1....1,000.... 30 00

Average.1,050 32 00—3c. per lb.

MILCH COWS AND CALVES.

4 head.
1.................$35 00
1................. 30 25
1................. 40 00
1................. 25 00

Average.............. 32 56
Number of cattle reported, 231 head.
Amount of sales, $7,000.

104*th Sale—October* 4*th*, 1864.

CATTLE.

14 head, 3 years, 1 lot.
14....1,050....$54 40—5 2-10c. per lb.
52 head, 2 years, 4 lots.
27....1,050....$46 45
4.... 900.... 30 00
13....1,050.... 42 50
8.... 809.... 27 25

Average..1,001 41 25—4 1-8c. per lb.
47 head, 1 year, 2 lots.
20....775....$30 10
27....850.... 30 00

Average..816 30 05—3 6-10c. per lb.
113 head, above ages—average round.
930....$38 25—4 1 10c. per lb.

OXEN.

4 head, 2 yokes.
1 pair, 2,800....$190 00
1 pair, 3,450.... 272 00

Average.. 3,125 231 00—7 4-10c. per lb.

SHEEP.

25 head................$3 80
35 " 4 50

60 " average...... 4 21
Number of cattle sold. 117 head.
Amount of sales, $5,100.

105*th Sale—November* 1*st*, 1864.

CATTLE.

45 head, 3 years, 5 lots.
12.......1,000....$44 85
1.......1,100.... 40 00
6.......1,200.... 62 30
25.......1,000.... 45 25
1 (4 yrs) 1,000.... 45 00

Average.... 1,030 47 30—4 6-10c. per lb.
75 head, 2 years, 7 lots.
7.... 800....$20 00
2.... 900.... 26 25
2.... 800.... 25 00
12.... 900.... 30 00
4.... 750.... 28 00
4.... 950.... 53 75
36....1,000.... 42 70
8.... 750.... 22 50

Average.. 658 12 45—2c. per lb.
20 head, 1 year, 3 lots.
10....600....$13 65
3....550.... 15 30
7....800.... 9 50

Average..658 12 45—2c. per lb.
140 head, above ages—average round.
915....$35 89—4c. per lb.

CALVES.

13 head.
7....400....$7 45
6.... .... 9 05

Average.400 8 17—2c. per lb.

MILCH COWS AND CALVES.

7 head.
1.................$21 00
1................. 30 25
1................. 39 50
1................. 24 00
1................. 23 50
1................. 35 50
1................. 44 50

Average.............. 31 18

OXEN.

40 head, 20 yokes.
1....2,400....$122 00
1....2,000.... 79 00
1....2,600.... 120 00
1....3,100.... 150 00
1....2,200.... 127 00
1....2,500.... 137 00
1....2,600.... 147 50
1....3,800.... 250 00
1....3,300.... 180 00
1....2,400.... 122 00
4....2,200.... 120 10
1....2,800.... 150 00
1....2,200.... 91 50
1....2,600.... 145 00
1....2,700.... 181 50
1....2,300.... 131 00
1....3,100.... 135 00

Average 2,520 137 90—5½c. per lb.

SHEEP.

50 head............$5 70
51 " 5 10
50 (S. D. lambs).... 5 00

151 head, average... 5 27

Number of cattle sold, 200 head.
" sheep sold, 151 "
Amount of sales, $8,500.

Remarks.—Sales very large; stock good; selling at advancing prices. Largest number and best quality of Northern and Western oxen ever offered for sale; mostly from Illinois.

106*th Sale—December* 6*th*, 1864.

CATTLE.

3 years, none.
30 head, 2 years, 4 lots.
16....750....$25 75
4....700.... 26 00
8....800.... 29 00
2.... .... 36 25

Average..757 27 35—3 6-10c. per lb.

7 head, 1 year, 2 lots.
2 (heif)........$18 25
5......650.... 30 00

Average.. 650 26 64—4c per lb.
37 head. above ages—average round.
744....$27 22—3 6-10c. per lb.

OXEN.

6 head, 3 yokes.
1 pr. (2 yrs.) 1,000....$61 00
1 pr........ 2,600.... 147 00
1 pr........ 2,500.... 146 00

Average....... 2,033 118 00—5 8-10c.

FAT COWS.

10 head. 3 lots.
1............$24 40
7....1250.... 50 25
2.... .... 36 25

Average.1250 44 86—3 6-10c. per lb.

MILCH COWS AND CALVES.

1................$46 00
Number of cattle reported, only 54 head.
Amount of sales, $2,000.

Recapitulation—1864—*Showing the number sold (as per Report) of each age and kind; also, number of lots in which offered of 3, 2 and 1 year olds; and the total number of cattle all ages, with the total number of stock of all kinds.*

Months.	CATTLE.														OTHER STOCK.				
	3 years.	No. lots.	2 years.	No. lots.	1 year.	No lots.	2, 3 and 1 yr.	No. lots.	Calves.	Oxen.	Fat Cows.	Milch Cows.	Bulls.	Total Cattle.	Horses.	Mules.	Sheep.	Hogs.	Total all stock.
1864.																			
January	....	..	7	1	....	..	7	1	..	....	..	..	..	7	..	..	....	..	7
February	....	..	38	2	22	2	60	4	..	10	1	1	..	72	..	..	....	..	72
March	....	..	41	3	29	3	70	6	..	18	..	2	..	90	..	..	....	..	90
April	91	5	64	5	57	4	212	14	..	8	15	5	..	240	..	..	26	..	266
May	25	2	41	4	8	3	74	9	.	....	2	1	1	78	..	..	....	..	78
June	....	..	32	1	2	2	34	24	..	....	..	2	..	36	..	..	....	..	36
July	41	2	134	5	18	2	193	9	..	12	21	4	..	230	..	..	....	..	230
August	33	3	64	6	9	3	106	12	..	4	13	4	1	128	..	..	....	..	128
September	10	1	154	10	54	5	218	16	5	2	2	4	..	231	..	..	....	..	231
October	14	1	52	4	47	2	113	7	..	4	..	..	..	117	..	..	60	..	177
November	45	5	75	7	20	3	140	15	13	40	..	7	..	200	..	..	151	..	351
December	....	..	30	4	7	2	37	6	..	6	10	1	..	54	..	..	....	..	54
Total	259	19	732	52	273	30	1264	101	18	104	64	31	2	1483	..	..	237	..	1720
Average per month	37	..	61	..	23	..	105	...	.	....	..	..	..	124	..	..	....	..	143

Table—*Showing the average prices of the different ages of cattle, with average estimated weights (given by best judges, which are proven about correct), and the average price per hundred pounds of all ages, separately; also, average of* 1, 2 *and* 3 *year old cattle together, for each month of* 1864, *and total average for the year of all kinds, with the addition of the averages of all other stock reported monthly, and total for the year; also, amount of "cash sales" monthly, and total.*

MONTHS.	CATTLE.											
	3 ys. lbs.	3 ys. price.	3 ys. cts.	2 ys. lbs.	2 ys. price.	2 ys. cts.	1 yr. lbs.	1 yr price.	1 yr. cts.	3, 2, &1 yr. lbs.	3, 2, &1 yr. price.	3, 2 &1 yr. cts.
1864.												
January	......	......	......	700	$16 55	2⅛	......	......	......	......	......	......
February	......	......	......	843	22 22	2 6-10	600	$15 15	2½	750	$19 61	2 6-10
March	......	......	......	760	22 20	3	458	13 66	3	635	18 66	3
April	755	$29 00	3 8-10	654	22 96	3½	530	12 07	2¼	670	22 59	3 4-10
May	1020	45 25	4 4-10	608	22 60	3 7-10	725	10 83	1½	765	29 48	3 9-10
June	......	......	......	700	21 90	3⅛	......	10 75	......	700	21 25	3 1-10
July	1400	55 25	3 9-10	940	37 20	4	......	19 11	......	944	36 00	3 7-10
August	722	17 44	2 4-10	762	27 25	3 6-10	500	17 00	3⅓	735	23 32	3⅛
September	1000	40 00	4	914	33 21	3 6-10	568	16 51	3	822	30 00	3⅝
October	1050	54 40	5 2-10	1001	41 25	4½	816	30 05	3 6-10	930	38 25	4 1-10
November	1030	47 30	4 6-10	915	35 29	3 8-10	658	12 45	2	915	35 89	4
December	......	......	......	757	27 35	3 6-10	650	26 64	4	744	27 22	3 6-10
Av. per mo.	997	41 23	4	788	27 50	3½	611	16 75	3	783	27 48	3½

MONTHS.	CATTLE.								
	Calves. lbs.	Calves. price.	Calves. cts.	Oxen. lbs.	Oxen. price.	Oxen. cts.	Fat cows. lbs.	Fat cows. price.	Fat cows. cts.
1864.									
January	....	....	....	....	....	....	....	....	....
February	....	....	....	2180	$93 33	4¼	....	$17 50	....
March	....	....	....	2440	100 95	4⅛	....	....	....
April	....	....	....	2075	87 44	4 2-10	....	20 95	....
May	....	....	....	....	....	....	....	27 13	....
June	....	....	....	....	....	....	....	....	....
July	....	....	....	2280	98 21	4 3-10	1000	19 40	1 9-10
August	....	....	....	3050	130 50	4¼	....	27 15	....
September	....	$12 00	....	2900	200 00	7	1050	32 00	3
October	....	....	....	3125	231 00	7 4-10	....	....	....
November	400	8 17	2	2520	137 90	5½	....	....	....
December	....	....	....	2033	118 00	5 8-10	1250	44 86	3 6-10
Av. per mo.	400	10 09	2	2911	133 04	5 1-9	1100	27 00	3

TABLE—*Showing the average prices of cattle for* 1864.

MONTHS.	CATTLE.						OTHER STOCK.				
	Milch cows. lbs.	Milch cows. price.	Milch cows. cts.	Bulls lbs.	Bulls. price.	Bulls. cts.	Horses.	Mules.	Sheep	Hogs.	Amount of sales.
1864.											
January	......	.....	......	......	......	......	....	......	......	......	....
February	......	$35 00	......	......	......	......	....	......	......	......	$1,800
March	......	28 25	......	......	......	......	....	......	......	......	2,500
April	......	30 60	......	......	......	......	....	......	$2 25	......	6,000
May	......	28 75	......	600	$19 50	2¼	....	......	......	......	2,200
June	......	39 00	......	......	......	......	....	......	......	......	800
July	......	27 75	......	......	......	......	....	......	......	......	8,500
August	......	35 94	......	1700	35 00	2	....	......	......	......	3,200
September	......	32 56	......	......	......	......	....	......	......	......	7,000
October	......	......	......	......	......	......	....	......	4 21	......	5,100
November	......	31 18	......	......	......	......	....	......	5 27	......	8,500
December	......	46 00	......	......	......	......	....	......	......	......	2,000
Average	......	33 50	......	1150	27 25	2⅛	....	......	3 91	......	47,600
Av. per mo.	......	......	......	......	......	......	....	......	......	......	4,330

107*th Sale—January* 3*d*, 1865.

CATTLE.

3 years—none in market.
36 head, 2 years, 2 lots.
15....750....$32 50
21....875.... 43 00

Average.. 823 38 65—4 7-10 cts. per lb.
72 head, 1 year, 4 lots.
20....600....$27 50
20....600.... 31 50
12....600.... 20 25
20....750.... 34 25

Average..642 30 00—4⅔ cts. per lb.
108 head, above ages, averaging round—
702 $32 40—4 6-10 cts. per lb.

CALVES.

48 head—2 lots.
7............$10 00
41............ 9 50

Average 9 58

OXEN.

6 head—3 yokes.
1 pr...2400..$105 50
1 pr...1200.. 57 00
1 pr...3200.. 225 00

Average..2267 129 17—5 7-10 cts. per lb.

MILCH COWS AND CALVES.

2 head.
1............$70 50
1............ 30 00

Average.......... 50 25

BULLS.

1—1 year.... $21 75

Number of cattle sold, 165 head.
Amount of sale, $4.500.

108*th Sale—February* 7*th*, 1865.

CATTLE.

3 years—none.
2 years "
26 head, 1 year, 2 lots.
9............$14 30
17....800.... 38 00

Average. 800 29 72—3 5-12 cts. per lb.
26 head, above ages, average—
800 $29 72—3 5-12 cts. per lb.

CALVES.

5 head.
5....500.... $20 00—4 cts. per lb.

OXEN.

6 head—3 yokes.
1 pr...2000..$125 00
1 pr...2800.. 230 00
1 pr...2000.. 124 00

Average..2267 159 67—7 cts. per lb.

MILCH COWS AND CALVES.

1............$35 50

Number of cattle reported only, 38 head.
Amount of sale, $1.500.

109*th Sale—March* 7*th*, 1865.

CATTLE.

56 head, 3 years, 3 lots.
14....775.... $38 50

20....775....$30 10
22....750.... 27 30

Average. 765 $31 10—4 1-10 cts. per lb.
17 head, 2 years, 1 lot.
17....600.... $30 25—5 cts. per lb
1 year—none.
73 head, above two ages, averaging round—
727 $30 90—4¼ cts. per lb.

OXEN.

12 head—6 yokes.
1 pr...2700..$108 00
1 " ..2000.. 82 50
1 " ..2200.. 136 50
1 " ..——.. 180 00
1 " ..2400.. 140 50
1 " ..2900.. 170 00

Average..2440 136 25—5 6-10 cts. per lb.

MILCH COWS AND CALVES.

2 head.
1.............$70 00
1............. 28 00

Average........ $49 00
Number of cattle reported, 87 head.
Amount of sale, $3,300.

110*th Sale—April* 4*th*, 1865.

CATTLE.

3 years—none in market.
31 head, 2 years, 1 lot.
31....775.... $40 20—5 2-10 cts. per lb.
2 head. 1 year.
1 heifer.....$17 25
1 .... 24 25

Average.......... 20 75
33 head, above two ages, averaging round—
775 $39 02—5 cts. per lb.

OXEN.

2 head—1 yoke
1 pr....[illegible]..$238 00—9 9-10 cts. per lb.

MILCH COWS AND CALVES.

1..............$30 00

SHEEP.

19 head.......$2 16
Number of cattle only, 36 head.
Number of sheep. 19 head.
Amount of sale, $1600.

Remarks.—Great attendance of buyers, but no stock to supply their wants. Grass coming on fast. Prices of neat stock still advancing—graziers owning think best to hold on.

111*th Sale—May* 2*d*, 1865.

CATTLE.

23 head, 3 years, 1 lot.
23... 750.... $40 00—5¼ cts. per lb.
29 head, 2 years, 4 lots.
7....550.... $21 60
15....750.... 38 00
2....450.... 20 50
5....650.... 21 25

Average.. 631 $30 00—3¼ cts. per lb.
17 head, 1 year, 1 lot.
17............$12 25
69 head, above ages, average round—
684 $28 94—4¼ cts. per.

OXEN.

head—1 yoke.
1 pr. 2 yrs...$112 00

MILCH COWS AND CALVES.

6 head.
1............$30 25
1............ 35 00
1............ 33 00
1............ 51 00
1............ 59 75
1............ 45 00

Average.......... 42 33

FAT COWS.

35 head—3 lots.
10............$27 25
10............ 31 40
15............ 33 50

Average.......... 31 12

BULLS.

1 2 year..... $20 00

SHEEP.

61 head wethers, fat...........$7 20
20 head ewes.................. 7 10

81 7 18
Number of cattle reported, 113 head.
Number of sheep, 81 head.
Amount of sale, $1,000.

112*th Sale—June* 6*th*, 1865.

CATTLE.

20 head, 3 years, 1 lot.
20....900.... $40 00—4 4-10 cts. per lb.
27 head, 2 years, 4 lots.
12....800.... $36 25
2....700.... 33 40
3... 800.... 33 80
10....700.... 24 50

Average.. 755 31 42--4 1-6 cts. per lb.
20 head, 1 year, 1 lot.
20....450.... $20 05—4 cts. per lb.
67 head, above ages, averaging round—
708 $30 60—4¼ cts. per lb.

OXEN.

2 head--1 yoke
1 pair...... $225 00

MILCH COWS AND CALVES.

4 head.
1.............$71 00
1............. 50 25
1............. 54 15
1............. 45 00

Average....... 55 10
Number of cattle sold, 75 head.
Amount of sale, $2,600.

Remarks.—Attendance large. Buyers numerous. Sellers few. Cattle advancing East—prospectively higher here. Gradual advance at every sale on *best* grades.

113*th Sale—July 4th*, 1865.

Owing to "Sale's Day" coming in contact with "Our Glorious Fourth," and *everybody's* taking a holiday, but one or two lots—small ones too, were offered. No report.

Besides grass being good, and cattle firm and considered scarce, take the country over, owners of catte are not anxious to dispose of their stock.

It is very doubtful whether or not beef cattle will ever be as low again as in old times. The vast immigration—beef consumers—the high price of dairy products and neat stock, having caused a slaughtering of calves, and fewer raised than formerly, has of course lessened the supply of aged cattle. Again, wool-growing being considered most remunerative, sheep have largely increased in the main "cattle counties," crowding out the latter and lessening the number.

114*th Sale—August 1st*, 1865.

CATTLE.

3 years—none offered.
14 head, 2 years, 2 lots.
3.... 800....$37 10
11.... 825.... 30 00

Average.. 819 31 52—3 8-10c. per lb.
1[illegible] head, 1 year, 2 lots.
9.... 650....$25 00
2............ 15 00

Average.. 650 23 20—3 6-10c. per lb.
25 head, above ages, averaged round—
753 $28 00—3 7-10c. per lb.

OXEN.

head—2 yokes.
1 pr..2400....$140 25
1 pr..2600.... 130 50

Average.. 2500 135 38—5 4-10c. per lb.

FAT COWS.

13 head—
10....1100....$40 00
1............ 41 00
1............ 34 00
1............ 27 25

Average..1100 38 63—3½c. per lb.

MILCH COWS AND CALVES.

3 head—
1..........................$30 50
1.......................... 56 00
1.......................... 53 00

Average.......................... 46 50
Number of cattle sold, 45 head.
Amount of sales, $1,600.

115*th Sale—September 5th*, 1865.

CATTLE.

years—none offered.
head, 2 years, 3 lots.
11...... 800....$35 00
2...... 800.... 28 50
3 (heif) 800.... 38 00

Average... 800 34 75—4⅜c. per
26 head, 1 year, 2 lots.
1 (heif)..........$28 00
16 (heif).. 600 23 05

Average... 600 24 95—4 1-5c per lb.
42 head, above ages, averaging round—
700 $28 61—4 1-10c. per lb.

OXEN.

4 head—2 yokes.
1 pr....2200...$100 50
1 pr....2300....154 00

Average...2250 125 25—6c. per lb.

FAT COWS.

2 head—
1....1200....$55 75
1....1100.... 49 00

Average..1150 52 38—4⅜c. per lb.

MILCH COWS AND CALVES.

4 head—
1..........................$49
1.......................... 61
1.......................... 45
1.......................... 45 50

Average.......................... 50 25

MULES.

20 head, 2 years $95 50
20 " " 80 00
14 " " 71 50

54 " average............. 83 54
Number of cattle sold, 55 head.
Number of mules sold, 54.
Amount of sales, $6,200.

Remarks—An unusually large attendance of buyers—not half enough cattle offered. These sales reflect views of buyers and sellers.

116*th Sale—October* 3, 1865.

CATTLE.

66 head, 3 years, 2 lots.
1 ox....1400....$[illegible]2 00
45.......1150.... 43 50
20....... 950.... 54 00

Average...1093 47 27—4⅜c. per lb.
136 head, 2 years, 7 lots.
27....... 700....$47 20
12....... 805.... 36 50
27.......1000.... 58 10
2....... 700.... 24 80
17............... 33 00
1 (heif)......... 36 50
50............... 50 00

Average... 882 47 25—5 4-10c.

20 head, 1 year, 2 lots.
12.... 550....$23 00
8.... 700.... 34 00

Average.. 610 27 40—4½c. per lb.
222 head, above ages, averaging round—
917 45 65—5c. per lb.

OXEN.

6 head—3 yokes.
1 pr....1800...$140 00
1 pr....2500....150 00
1 pr....2600....150 00

Average..2300 146 67—6 4-10c. per lb.

FAT COWS.

17 head, 3 lots.
1..............$42 00
1.............. 34 00
15.... 800.... 39 00

Average.. 800 40 00—5c. per lb.

MILCH COWS AND CALVES.

5 head.
1............................$58 00
1............................ 77 00
1............................ 58 00
1............................ 45 00
1............................ 65 25

Average 60 65

SHEEP.

50 lambs $3 50
umber of cattle sold, 257 head.
mount of sales, $11,700.

Remarks.—The larger number of cattle sold this month were brought here from Illinois, for this object, paying handsome ofits.

117th Sale—November 7th, 1865.

CATTLE.

85 head, 3 years, 4 lots.
4 ....1475....$67 50
20 (4 yrs) 1000.... 47 75
40 (").1070.... 56 50
21.........1200.... 75 50

Average....1095 59 65—5 4-10c. per lb.
266 head, 2 years, 15 lots.
9......... 800....$38 75
20.........1000.... 50 25
30......... 750.... 36 10
32......... 925.... 51 50
7......... 600.... 24 25
6.........1502....120 00
9.........1000.... 50 50
14.........1050.... 56 50
11 (mix'd) 750.... 26 85
17......... 800.... 29 00
11.........1000.... 59 80
9.........1100.... 50 00
29......... 950.... 47 25
24......... 850.... 36 75
29......... 800.... 30 00

Average.... 900 43 60—4¾c. per

23 head, 1 year, 4 lots.
10......... 700....$26 00
10 (heif.).......... 22 25
2......... 750.... 38 00
1.................. 25 00

Average.... 708 25 37—3 6-10c. per lb
374 head, above ages, averaging round—
939 $46 11—4 9-10c. per lb.

CALVES.

11 head, 2 lots.
3..............................$10 20
8.............................. 18 00

Average 15 90

FAT COWS.

3 head..........................$35 00

OXEN.

20 head—10 yokes.
1 pr..3000....$222 00
1 pr..2000.... 125 00
1 pr..2800.... 201 00
1 pr..3250.... 228 50
1 pr..3000.... 200 00
1 pr..3000.... 225 00
1 pr..2500.... 141 00
1 pr..2600.... 174 00
1 pr..3000.... 232 00
1 pr..3100.... 222 00

Average. 2825 207 05—7⅓c. per lb.

MILCH COWS AND CALVES.

1..............................$36 00
1.............................. 42 50
1.............................. 40 75

Average.......................... 39 75

BULLS.

1, 1 year.........1000..........$56 00

MULES.

9 head, 1 year.................$81 00
12 " " 70 00

21 Average per head....... 74 24

Number of cattle sold, 412 head.
Number of mules sold, 21 head.
Amount of sales, $22,500.

Remarks.—Besides those reported, a large number of cattle and oxen were sold, and some 400 head were not offered, for want of time. Quality of all offered, A., No. 1. Two year old steers sold at $120 per head. Buyers and sellers in attendance from twelve counties, and some from Illinois. Quite a number of horses sold at from $60 to $100 each—some 15 head. 800 to 1000 head of cattle in market.

118th Sale—December 5th, 1865.

CATTLE.

163 head, 3 years, 8 lots.
38.......1150....$70 00
2 (4 yrs) 1100.... 63.50

9.......1100....$64 25
4.......1000.... 57 00
101.......1000.... 50 60
1.......1600.... 100 00
2.......1100.... 63 50
6.......1400.... 64 25

Average...1050 57 15—5 4-10c. per lb.
232 head, 2 years, 12 lots.
20.... 900....$40 87
29.... 950.... 45 00
28.... 950.... 46 40
22.... 900.... 43 00
6....1000.... 47 25
24.... 850.... 35 00
38.... 950.... 42 25
18.... 950.... 42 00
13.... 800.... 28 00
2.... 850.... 25 13
32.... 700.... 32 00

Average.888 40 06—4½c. per lb.
45 head, 1 year, 5 lots.
2.......550....$25 00
3 (hfs).—.... 20 00
2.......550.... 29 50
36.......660.... 32 00
2.......859.... 25 50

Average...650 30 72—4 7-10c. per lb.
423 head above ages, averaging round—
925....$45.41—5c. per lb.

OXEN.

14 head, 7 yokes.
1 pair, 3800....$232 50
1 " 3750.... 265 00
1 " 2800.... 148 00
1 pair, 3200....$201 00
1 " 2600.... 125 00
1 " 2800.... 155 00
1 " 2200.... 110 00

Average...3022 176 64—5⅞c. per lb.

FAT COWS.

3 head.
2 ....$43 25
1 .... 40 25

Average 42 25

MILCH COWS AND CALVES.

6 head.
1 ....$35 00
1 .... 28 50
1 .... 35 00
1 .... 30 25
1 .... 49 75
1 .... 69 50

Average 35 73

BULLS.

1, 1 yr..850....$26 25—3c. per lb.

SHEEP.

75 head........................$3 60
Number of cattle sold as reported, 464 head.
" sheep " 75 "
Amount of sale, $22,000.

REMARKS.

The cattle sold this month are mostly from Indiana, Illinois and Missouri, brought here to offer at this time. Demand brisk; advancing prices; weight generally heavier than usual.

Recapitulation—1865.—*Showing the number sold (as per report) of each age and kind; also number of lots in which offered of 3, 2 and 1 year olds, and the total number of cattle of all ages with the total number of stock of all kinds.*

Months.	CATTLE.															OTHER STOCK.				
	3 years.	No. lots.	2 years.	No lots.	1 year.	No. lots.	3, 2 and 1 year. Totals.	No. lots.	Calves.	Oxen.	Fat cows.	Milch cows.	Bulls.	Total cattle.	Horses.	Mules.	Sheep.	Hogs.	Total stock.
1865.																			
January...	....	..	36	2	72	4	108	6	48	6	....	2	1	165	....	....	....	....	165
February..	....	..	.....	..	26	2	26	2	5	6	....	1	..	88	....	....	....	....	38
March	56	3	17	1	....	..	73	4	....	12	....	2	..	87	....	....	...	....	87
April......	....	..	31	1	2	2	33	3	....	2	....	1	..	36	....	....	19	....	55
May	23	1	29	4	17	1	69	6	....	2	35	6	1	113	....	....	81	....	194
June......	20	1	27	4	20	1	67	6	....	2	....	4	..	73	....	....	....	....	73
July *.....	....	..	....	..	....	..	....	..	....	....	....	....	..	....	....	....	....	....	....
August....	....	..	14	2	11	2	25	4	....	4	13	3	..	45	....	....	....	....	45
September.	....	..	16	3	26	2	42	5	....	4	2	4	..	52	....	55	....	....	107
October ...	66	2	137	7	20	2	223	11	....	6	17	5	..	251	....	....	50	....	301
November.	85	4	266	15	23	4	374	23	11	20	3	3	1	412	15	21	....	....	448
December.	163	5	232	10	45	4	440	19	....	14	3	6	1	464	....	....	75	....	539
Total....	413	16	805	49	262	24	1480	89	64	78	73	37	4	1736	15	76	225	....	2052
Av. pr mo.	69	..	80	..	26	..	124	..	....	....	....	....	..	158	....	....	....	....	

* The "glorious Fourth."

Table—*Showing the average prices of the different ages of cattle, with average estimated weights (given by best judges, which are proven about correct,) and the average price per* 100 *lbs., of all ages, separately; also, average of* 1, 2, *and* 3 *year old cattle together, for each month of* 1865, *and total average for the year of all kinds, with the addition of the averages of all other stock reported monthly, and total for the year; also, amount of "cash sales" monthly, and total.*

Months.	CATTLE.											
	3 yrs lbs	3 yrs. Price.	3 yrs. cts.	2 yrs lbs.	2 yrs. Price.	2 yrs. cts.	1 yr. lbs.	1 yr. Price.	1 yr cts	3, 2, & 1 yr lbs.	3, 2, & 1 yr Price.	3, 2, & 1 yr cts.
1865.												
January ..	.....	......	......	823	$38.65	4 7-10	642	$30.00	4⅛	702	$32.40	4 6-10
February .	.....	......	......	.....	......	......	800	29.72	3 5-12	800	29.72	3 5-12
March	765	$31 10	4 1-10	600	30.25	5	.....	......	......	727	3[illegible].90	4¼
April	.....	......	......	775	40.20	5 2-10	.....	20.75	......	775	39.02	5
May	759	40 00	5⅛	931	30 00	3¼	.....	12.25	......	684	23.94	4¼
June......	900	40.00	4 4-10	755	31.42	4 1-6	450	20.05	4	70[illegible]	30.60	4⅛
July	.....	......	......	.....	......	......	.....	......	......	......	......	......
August ...	.....	......	......	819	31.52	3 8-10	650	23.20	3 6-10	753	28.00	3 7-10
September	.....	......	......	800	34.75	4⅛	600	24.95	4 1-5	70[illegible]	28.61	4 1-10
October ...	1093	4[illegible].27	4⅛	882	47.25	5 4-10	610	27.40	4½	917	45.46	5
November	1095	[illegible].65	5 4-10	900	43.60	4⅞	708	25.37	3 6-10	939	46 11	4 9-10
December .	1050	57 15	5 4-10	888	40.06	4½	650	30.72	4 7-10	925	45.41	5
Total aver	942	5 36	4 5-6	817	36.77	4⅛	639	24 44	4	785	35.02	4⅛

Months.	CATTLE.								
	Calves. lbs.	Calves. Price.	Calves cts.	Oxen. lbs.	Oxen. Price.	Oxen. cts.	Fat cows. lbs.	Fat cows. Price.	Fat cows. cts.
1865.									
January....	....	$9 58	....	2267	$129.17	5 7-10	....	....	....
February...	500	20.00	4	2267	159 67	7	....	....	....
March......	....	....	....	2440	136 25	5 6-10	....	....	....
April.......	....	....	....	2400	238.00	9 9-10	....	....	....
May........	....	....	....	....	112.00	....	....	$31.12	....
June	....	....	....	....	225.00	....	....	....	....
July.......	....	....	....	....	....	....	....	....	....
August	....	....	....	2500	135.38	5 4-10	1100	38.63	3⅛
September..	....	....	....	2250	125 25	6	1150	52.38	4⅛
October	....	....	....	2300	146.67	6 4-10	800	40.00	5
November ..	....	15.90	....	2825	207.05	7⅛	....	35.00	....
December ..	....	....	....	3022	176 64	5⅞	....	42.25	....
Total av'age	500	15.16	4	2475	162 83	6⅝	1017	39.89	4⅛

TABLE—*Showing the average prices of cattle for* 1865—Continued.

MONTHS.	CATTLE.						OTHER STOCK.				Am't of sales.
	Milch cows. lbs.	Milch cows. Price.	Milch cows. cts.	Bulls. lbs.	Bulls. Price.	Bulls. cts.	Horses.	Mules.	Sheep	Hogs.	
1865.											
January	......	$50.26	......	......	$21.75	......	......	......	......	......	$4,500
February	......	35.50	......	......	......	......	......	......	......	......	1.500
March	......	49.00	......	......	......	......	......	......	......	......	3,300
April	......	30.00	......	......	......	......	......	......	$2.16	......	1,600
May	......	42.33	......	......	20.00	......	......	......	7.18	......	4,000
June	......	55.10	......	......	......	......	......	......	......	......	2,600
July	......	.....	......	......	......	......	......	......	......	......	......
August	......	46.50	......	......	......	......	......	......	......	......	1,600
September	......	50.25	......	......	......	......	......	$83.54	......	......	6,200
October	......	60.65	......	......	......	......	......	......	3 5	......	11,700
November	......	39.75	......	......	56.00	......	$80.00	74.25	......	......	22,500
December	......	35.73	......	850	26.25	3	......	......	3.6	......	22,000
Total aver.	......	45.00	......	850	31.00	3	80.00	78.90	4.11	......	81,500
	Average per month										7,410

119*th Sale—January 2d*, 1866.

CATTLE.

36 head, 3 years, 2 lots.
28....950....$43 25
8....950.... 48 00

Average. 950 44 30—4⅔ cts. per lb.
51 head, 2 years, 5 lots.
22....850....$37 05
21....700.... 32 20
1...1000.... 45 00
6....900.... 42 00
1....750.... 34 00

Average. 800 35 73—4½ cts. per lb.
13 head, 1 year, 3 lots.
3 heif. 700...$26 00
1.....450....24 00
9.....550....26 50

Average .. 577 26 20—4½ cts. per lb.
100 head, above ages, averaging round—
722 $37 58—5 2-10 cts. per lb.

OXEN.

2 head—1 yoke.
1 pair 2200 $130 25—6 cts. per lb.

FAT COWS.

3 head.
2....1050....$40 00
1....1000.... 65 00

Average. 1025 48 33—5 7-10 cts. per lb.

MILCH COWS AND CALVES.

1 (and calf)............ $50 50

Number of cattle sold, 106 head.
Amount of sale, $4,200.

120*th Sale—February* 6*th*, 1866.

CATTLE.

3 years—none in market.
2 " " "
75 head, 1 year, 3 lots.
26....850....$37 50
19....700.... 28 75
30........... 52 00

Average. 800 41 08—5⅛ cts. per lb.

75 head, above age, averaging—
800 $41 08—5⅛ cts. per lb.

OXEN.

4 head—2 yokes.
1 pair 2300..$150 00
1 " 1900.. 110 00

Average. 2100 $130 50—6 2-10 cts. per lb.

MILCH COWS AND CALVES.

3 head.
1.....................$50 00
1..................... 50 00
1..................... 53 00

Average.......... 51 00

FAT COWS.

5 head $55 25

MULES.

40 head .... $100 each.

HORSES.

10 to 15 head sold from $66 to $126 each, mostly to farmers. Averaging about $90 per head.

Total number of cattle sold, 87 head.
Amount of sale $9,000.

REMARKS.—The attendance of persons increases monthly. Auctioneers of goods (aside from stock) very numerous, making large sales. Farmers plenty of rough feed.

121*st Sale—March* 6*th*, 1866.

CATTLE.

years—no e.
1 heifer.... $37 75
89 head, 1 year, 4 lots.
35......800..$51 00
28......800.. 50 00
4 (heif.) 32 10
22....700.... 35 80

Average. 774 $46 20—6 cts. per lb.
90 head, above two ages, averaging round—
774 $45 98—5 9-10 cts. per lb.

CALVES.

9 head.. 500....$33—6⅝ cts. per lb.

OXEN.

6 head—3 yokes.
1 pr..2600..$181 00
1 " ..2200.. 175 00
1 " ..2400.. 155 50

Average. 2400 170 50—7 1-10 cts. per lb.

MILCH COWS.

6 head.
1............$61 25
1............ 68 75
1............ 58 50
1............ 41 25
1............ 65 00
1............ 80 50

Average 62 54

FAT COWS.

2 head.
1............$52 50
1............ 58 75

Average........ 55 63

BULLS.

2 head.
1 (1 year)....$31 00
1 " 32 00

Average........ 31 50
Number of cattle sold, 105 head.
Amount of sale, $5,700.

122*d Sale—April* 3*d*, 1866.

CATTLE.

3 years—none.
41 head, 2 years, 4 lots.
3 heif. 950..$43 00
5......750.. 34 00
30......850.. 49 00
3......900.. 42 55

Average... 850 46 25—5 4-10 cts. per lb.
14 head, 1 year, 2 lots.
4....700....$33 80
10....700... 34 50

Average. 700 34 16—4 9-10 cts. per lb.
55 head, above two ages, averaging round—
812 $43 18—5¼ cts. per lb.

OXEN.

10 head—5 yokes.
1 pr....... 2400..$150 00
1 " .... 3400.. 250 00
1 " .... 2300.. 173 00
1 " (2 yrs.)1800.. 153 50
1 " " 1500.. 99 25

Average.......2280 $165 15—7¼ cts. per lb.

MILCH COWS AND CALVES.

1................$47 00
1................ 71 25
1................ 45 50
1................ 37 25
1................ 35 75
1................ 49 25
1................ 72 75
1................ 58 75

Average............ $52 19

HORSES.

10 head, at from $13 to $90.
Average, say... $50

Number of cattle sold, 73 head.
Amount of sale, $4,200.

REMARKS.—More buyers than sellers. All sold that were offered. Prices rule high. Cattle scarce.

123*d Sale—May* 1*st*, 1866.

CATTLE.

57 head, 3 years, 3 lots.
19.... 950....$49 05
19....1200.... 81 50
19....1200.... 79 00

Average.. 1117 70 00—6¼c. per lb.
47 head, 2 years, 2 lots.
34....875....$63 00
13....700.... 31 60

Average..827 54 32—6 6-10c. per lb
49 head, 1 year, 2 lots.
3....500....$21 00
46....600.... 33 20

Average..594 32 45—5½c. per lb.
153 head, above ages—average round.
853....$53 10—6 2-10c. per lb.

OXEN.

2 head, 1 yoke.
1 pair, 2,900....$202 00—7c. per lb.

MILCH COWS.

2 head.
1............$90 00
1............ 46 25

Average........ 68 13

MULES.

7 head, years...$89 25

Number of cattle sold, 157 head.
" mules " 7 "
Amount of sales, $9,000.

Remarks.—Very cold rain, preventing a large attendance; all stock offered sold.

124*th Sale—June* 5*th*, 1866.

CATTLE.

30 head, 3 years, 2 lots.
5....1450....$106 25 (good ones.)
25....1300.... 91 00

Average..1325 93 54—7c. per lb.

80 head, 2 years, 4 lots.
12 (heif) 800....$46 25
28......1000.... 70 00
30...... 950.... 49 30
10...... 900.... 52 25

Average.....940 56 48—6c. per lb.

15 head, 1 year, 3 lots.
7 (heif) 700....$33 60
6...... 600.... 38 50
2...... 600.... 34 00

Average... 647 35 61—5½c. per lb.

125 head, above ages—average round.
1000....$62 87—6¼c. per lb.

OXEN.

8 head, 4 yokes.
1 pair, 3400....$240 00
1 " 2500.... 151 25
1 pair, 2800.... $161 00
1 " 2800.... 210 50

Average..2875 190 69—6⅝c. per lb.

MILCH COWS AND CALVES.

6 head.
1..............$53 00
1.............. 56 00
1.............. 55 00
1.............. 54 75
1.............. 61 00
1.............. 58 00

Average............ 56 29

Number of cattle sold, 139 head.
Amount of sales, $9,000.

Remarks.—Many horses sold at a large range of prices; all stock offered taken at advancing rates.

Remarks Continued.

We close this sale's report with this month's account, making—from July 1859 to July 1866—just seven years, or 84 monthly sales. By glancing at the annual recapitulations at the close of each year's report, or the total review of all times following this, it will be seen that since the first to middle of 1864, the advance has been almost constant, yet gradual up to this time. Now the prices of different ages, and the dollars and cents per hundred lbs. are from *one* to *two* and *three*, often *four* or *five*, hundred per cent. higher than at the beginning.

Recapitulation—6 *months* 1866—*Showing the number sold (as per Report) of each age and kind; also, number of lots in which offered of* 2, 3 *and* 1 *year olds; and the total num- all ages, with the total number of stock of all kinds.*

MONTHS.	CATTLE.														OTHER STOCK.				
	3 years.	No. lots.	2 years.	No. lots.	1 year.	No. lots.	3, 2 and 1 year.	No. lots.	Calves.	Oxen.	Fat cows.	Milch cows.	Bulls.	Total cattle.	Horses.	Mules.	Sheep.	Hogs.	Total stock of all kinds.
1866.																			
January..............	36	2	51	5	13	3	100	10	..	2	3	1	..	106	..	..	....	..	106
February..............	....	..	....	..	75	3	75	3	..	4	5	3	..	87	12	40	....	..	139
March..............	....	..	1	1	89	3	90	4	9	6	2	6	2	115	4	..	....	..	119
April..............	....	..	41	4	14	2	55	6	..	10	..	8	..	73	10	..	....	..	83
May..............	57	3	47	2	49	2	153	7	..	2	..	2	..	157	..	7	....	..	164
June..............	30	3	80	2	15	3	125	8	..	8	.	6	..	139	..	..	....	..	139
Total for six months..	123	8	220	14	255	16	598	38	9	32	10	26	2	677	26	47	....	..	750
Average per month..	41	..	44	..	42		99	....	..	....	..	..	..	113	..	..	....	..	125

Table—*Showing the average prices of the different ages of cattle, with averabe estimated weights (given by best judges, which are proven about correct), and the average price per hundred pounds, of all ages, separately; also, average of 1, 2 and 3 year old cattle together, for each month of first six of 1866, and total average for six months, of all kinds; with the addition of the averages of all other stock reported monthly, and total for the year. Also amount of "Cash sales" monthly, and total.*

MONTHS.	CATTLE.											
	3 ys. lbs.	3 ys. Price.	3 ys. cts.	2 ys. lbs.	2 ys. Price.	2 ys. cts.	1 yr. lbs.	1 yr. Price.	1 yr. cts.	3, 2, &1 yr. lbs.	3, 2, &1 yr. Price.	3, 2, &1 yr. cts.
1866.												
January ..	950	$48 30	4⅜	800	$35 73	4½	577	$26 20	4½	722	$37 58	5 2-10
February .	......	......	...	......	......	......	800	41 08	5⅛	800	41 08	5⅛
March	......	......	..	......	37 50	......	774	46 20	6	774	45 98	5 9-10
April	......	.....	....	850	46 26	5 4-10	700	34 16	4 9-10	812	43 18	5⅜
May	11[illegible]	70 00	6½	827	54 32	6 6-10	594	32 45	5⅜	853	53 10	6 2-10
June......	1325	93 54	7	940	56 48	6	647	35 61	5½	1000	62 87	6¼
Av. 6 mos.	1131	70 61	6	854	46 06	5⅜	682	35 95	5¼	889	50 87	5⅝

MONTHS.	CATTLE.								
	Calves. lbs.	Calves. Price.	Calves. cts.	Oxen. lbs.	Oxen. Price.	Oxen. cts.	Fat cows. lbs.	Fat cows. Price.	Fat cows. cts.
1866.									
January....	....	....	....	2200	$130 25	6	1025	$48 33	5 7-10
February...	....	....	....	2100	130 50	6 2-10	....	55 25	....
March......	500	$33 00	6⅝	2400	170 50	7 1-10	....	55 63	....
April.......	....	....	....	2280	165 15	7¼	....	....	....
May	....	....	....	2900	202 00	7	....	....	....
June	....	....	....	2875	190 69	6⅝	.... ..	....	....
Av'g 6 mos.	500	33 00	6⅝	2659	164 85	6¼	1025	53 07	5 7-10

MONTHS.	CATTLE.						OTHER STOCK.				
	Milch cows. lbs.	Milch cows. Price.	Milch cows. cts.	Bulls. lbs.	Bulls. Price.	Bulls. cts.	Horses.	Mules	Sheep.	Hogs.	Amount of sales.
1866.											
January ..	......	$50 50	......	......	......	......	....	......	......	......	$4,200
February .	......	51 00	......	......	......	......	$90 00	100 00	......	......	9,000
March	......	62 51	......	......	$31 50	......	50 00	......	......	......	5,700
April	......	52 1[illegible]	......	......	......	......	50 00	......	......	......	4,200
May	......	68 13	......	......	......	......	....	89 25	......	......	9,000
June......	......	56 29	......	......	......	......	....	......	......	......	9,000
Av. 6 mos.	......	56 78	......	......	31 50	......	63 33	$94 63	......	......	41,100
Av. per mo	......	.....	....	...	......	...	....	......	......	......	6,850

ERAL RECAPITULATION—*From July*, 1859 *to July*, 1866 (7 *years*), *showing total numbers and lots* (*all ages*) *of cattle and other stock, from preceding yearly reports.*

YEARS.	CATTLE.														OTHER STOCK.				
	3 years, total	No. lots.	2 years, total.	No. lots.	1 year, total.	No. lots.	3,2 and 1 year, total.	No. lots.	Calves.	Oxen.	Fat cows.	Milch cows.	Bulls.	Total cattle.	Horses.	Mules.	Sheep.	Hogs.	Total stock.
1859(last 6 mos)	182 45	6	655 109	31	143 24	15	980 163	52	14	16	2	13	1	1026 171	27	29	175	..	1259 209
1860	1071 83	36	1264 92	63	906 72	54	3241 240	153	19	102	41	24	3	3430 256	37	...	177	28	3672 276
1861	543 60	32	922 77	50	702 64	29	2167 131	111	24	38	5	28	6	2268 189	...	14	315	40	2637 220
1862....	1061 118	43	996 100	56	949 89	52	3006 300	151	44	29	22	28	..	3129 313	...	...	300	15	3444 344
1863 (10 mos) .	699 88	24	802 80	34	198 25	16	1699 170	74	13	40	124	17	3	1896 190	...	...	1047	..	2943 294
1864....	259 37	19	732 61	52	273 23	30	1264 105	101	18	104	64	31	2	1483 124	...	...	237	..	1720 143
1865....	413 69	16	805 80	49	262 26	24	1480 124	89	64	78	73	37	4	1736 158	15	76	225	..	2052 187
1866(first 6 mos)	123 41	8	220 44	14	256 42	16	598 99	38	9	32	10	26	2	677 113	26	47	.....	..	750 125
Total 7 yrs	4351	184	6396	349	3688	236	14,435	769	205	439	341	204	21	15,645	105	166	2476	83	18,477
Av. per yr.	621	...	915	...	670	...	2062	119	...	...	..	...	..	2235	...	...	.....	..	2354
Aver. per mo. for 7 years ...	77	...	92	...	52	...	197	16	...	...	...	...	..	216	...	...	.....	..	243

GENERAL RECAPITULATION.—*Table showing the yearly averages, taken from preceding monthly reports, with totals for whole time of seven years, of the pounds, prices, per cents., and sales, etc., of cattle and other stock.*

YEARS.	CATTLE.											
	3 yrs. lbs.	3 yrs. Price.	3 yrs. cts.	2 yrs. lbs.	2 yrs. Price.	2 yrs. cts.	1 yr. lbs.	1 yr. Price.	1 yr. cts.	3, 2, & 1 yr lbs.	3, 2, & 1 yr Price.	3, 2, & 1 yr cts.
1859*	1137	$29.11	2 5-6	913	$21.01	2¼	640	$14.19	2¼	900	$21.82	2½
1860	1016	29.65	2 9-10	870	24 86	2 7-10	654	17.46	2½	847	23.99	2 7-10
1861	1037	26.62	2½	872	20.06	2¼	601	13.90	2 4-10	840	20.43	2½
1862	1031	25.60	2½	772	16 33	2 1-5	586	12.06	2 1-8	809	18.04	2¼
1863†	1021	38.06	2⅝	808	19.52	2 4-10	609	13.17	2⅛	843	22.03	2 6-10
1864	997	41.23	4	788	27.50	3½	611	16.75	3	783	27.48	3½
1865	942	45.86	4 5-6	817	36.77	4½	639	24.44	4	785	35.02	4½
1866‡	1131	70.61	6	854	46.06	5⅜	682	35.95	5¼	889	50.87	5¾
Total aver.	1039	38.34	3 6-10	837	26.51	3¼	628	18.49	3	837	27.46	3 3-10

* Last six months. † Ten months. ‡ First six months.

General Recapitulation—Continued.

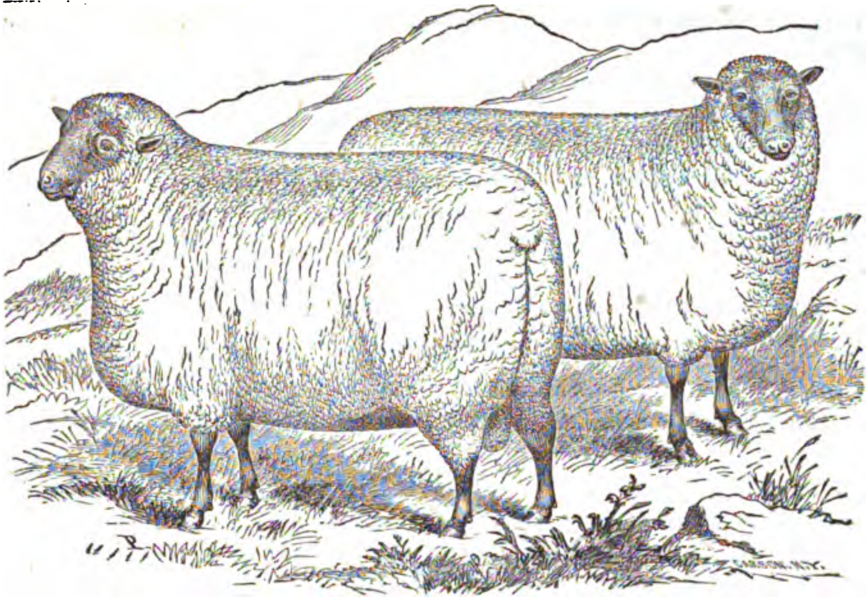
Years.	Cattle.								
	Calves. lbs.	Calves. Price.	Calves. cts.	Oxen. lbs.	Oxen. Price.	Oxen. cts.	Fat cows. lbs.	Fat cows. Price.	Fat cows. cts.
1859*........	350	$8.85	2½	2488	$80.75	3 1-5	1150	$24.00	2 1-10
1860........	267	9.05	2¾	2584	84.48	3⅛	1052	26.25	2⅓
1861........	350	5.18	1⅓	3610	72.75	2 8-10	1214	26.09	2 4-10
1862........	392	6.26	2	2445	66.03	2⅜	1021	24.88	2½
1863†........	....	6.39	....	2350	78.46	3 3-5	826	19.55	2 3-10
1864........	400	10.09	2	2911	133.04	5 1-9	1100	27.00	3
1865........	500	15.16	4	2475	162.83	6⅜	1017	39.89	4⅓
1866‡........	500	33.00	6⅔	2659	164.85	6¾	1025	53.07	5 7-10
Total aver..	394	11.75	3	2565	105.40	4¼	1051	30.09	3 1-9

* Last six months. † Ten months. ‡ First six months.

Years.	Cattle.						Other stock.				Yearly am't of sales & monthly average.
	Milch cows. lbs.	Milch cows. Price.	Milch cows. cts.	Bulls. lbs.	Bulls. Price.	Bulls. cts.	Horses.	Mules.	Sheep.	Hogs.	
1859*	1400	$25.75	2 2-10	......	$47.00	......	$53.79	$46.00	$1.47	......	$26,500 4,417
1860	1093	24.28	2⅛	1300	41.83	2⅛	72.10	......	1.76	$5.19	73,500 14,000 6,125
1861	1016	21.62	2⅛	1112	33.90	2¾	....	64.00	1.96	4.30	47,900 4,000
1862	1025	19.81	2	......	......	......	....	......	2.41	2.15	60,100 6,010
1863†......	975	18.17	2⅓	1300	29.50	2	....	......	3.51	......	48,300 4,830
1864	......	33.50	......	1150	27.25	2⅝	....	......	3.91	......	47,600 4,330
1865	......	45.00	......	850	31.00	3	80.00	78.90	4.11	......	81,500 7,410
1866‡......	......	56.78	......	......	31.50	......	63.33	94.63	......	......	41,100 6,850
Total aver.	1102	30.61	2¼	1142	34.57	2⅓	67.31	70.88	2.77	3.88	426,500
	Average per year..										60,929
	Average per month for seven years........................										6,282

* Last six months. † Ten months. ‡ First six months.

SOUTHDOWNS.



The largest, "DANIEL WEBSTER," bred by Mr. Thorn, of N. Y.; the smaller one, "JONAS WEBB," bred by Mr. Taylor, of N. J. Owned by Hills & Jones.

SHEEP.

In Ohio sheep were first enumerated by the assessors in 1846, and that year consequently forms our starting point for numbers and values. On page —— will be found a table giving the number and value from 1846 to 1865, a period of twenty years. From 1846 to 1861 the sheep averaged 3,679,943 in numbers, but from 1862 to 1865 the number averaged 5,339,195, or an increase of 50 per cent. upon the annual average of the preceding 16 years. The increase in value is not only remarkable but astonishing; in 1850, 3,812,707 sheep were valued at $1,948,984, or about 50 cents a head; in 1861, 3,943,436 head were valued at $6,681,427, or $1.69 cents per head; and in 1865, 6,305,796 head were valued at $22,088,176, or $3.50 per head, or seven times the amount they were valued at in 1850. Such an increase in numbers, and at the same time such an increase in value, is unexampled in the history of live stock. As a rule, when the quantity increases the price declines, and *vice versa*, but in this instance, whilst the numbers have nearly doubled since 1850, the price has attained seven-fold proportions.

There is no denying the fact, however, that the quality of the sheep in the State has greatly improved, as well as the weight of fleece. In 1850 the fleece, in all probability, did not average more than two pounds—it may perhaps be safe to state that the average at present is at least double that amount; by consulting the tables on pages 133-4 and 5 of this report, the weight of fleece may be seen of some of the best sheep in the State.

For many years an opinion prevailed that Ohio was not adapted, in her climate and soil, for the long-wooled sheep, such as Leicesters, Cotswolds, Lincolns, &c., but many years experience has completely dispelled this idea; the Leicesters proving as hardy, prolific, and thriving as well here as in England; and so of the other mutton or long-wool breeds. There is not a desirable race or breed of sheep that will not flourish in Ohio.

The causes of the increase of numbers and price of sheep and wool, will be found ably discussed in the following

ADDRESS TO THE OHIO WOOL GROWERS' CONVENTION.

BY N. S. TOWNSHEND.

Mr. President, and Gentlemen of the Ohio Wool-Growers' Association:

When I received, a few days since, an invitation to address this Association, my first impulse was to decline, for in the military service of the country, from which I have been mustered less than two months, I have had little opportunity to learn what you have been doing, or what are your present aims. But on reflection, it occurred to me that the opportunity I have had during the war of traveling through several of the Southern and Western States and Territories, has made me more familiar than heretofore with some aspects of the subject which occupies your Association, and might perhaps enable me to entertain you for a few minutes. I therefore meet you with pleasure, and ask your attention to a consideration of the importance of a largely increased production of wool in the United States.

Were we ignorant of the causes which have produced such a result, it would certainly appear strange to us that this great agricultural country, so perfectly adapted in its soil and climate to wool growing, should fail to produce enough to supply the wants of its inhabitants. In 1860 the United States produced 60,000,000 of pounds of wool, and imported 34,000,000 of pounds, besides importing manufactured woolens of the value of $38,000,000. In 1864 we produced 80,000,000 of pounds, but we imported 73,000,000 lbs. and $30,000,000 worth of woolen goods. I am unable to say how many pounds of wool or shoddy were worked up in the goods we imported, but it is too apparent that we produce less than three-fourths of what is required by our manufacturers, and but little, if any, more than half enough to clothe ourselves.

And that this deficiency will continue for years to come is more than probable. Before the rebellion, the Cotton States could concentrate the labor of half a million of slaves on the production of their great staple, cotton, the only article which can to any considerable degree supply the place of wool. Although we trust that the prosperity of those States will soon be restored and their future wealth greatly transcend the past, it does not seem probable that the cotton crop can reach its former figures for many years to come. Though the freedmen should prove models of industry, it is not possible that their labor can be directed so much in one channel as heretofore. They will have a thousand new objects of pursuit, and whether all of them are conducive to happiness or no, they will equally interfere with the production of cotton. It may also be asserted that the newly-made freedmen and their families will as soon as possible dress much better than they did while slaves, and create a demand for woolen goods for which their past consumptions affords no comparison. An increased immigration from Europe, which we may reasonably expect, will also add to the necessity for a large supply. And it is not improbable that the million of returned soldiers who, during the war, have acquired the habit of wearing wool where they formerly wore cotton, may also to some extent increase the demand.

We have, therefore, practically to discuss a question of great importance. Shall the increased demand of the future be supplied by importation, or by an increased home production? If our whole country presented such peculiarities of soil and climate that other forms of industry would yield permanently larger profits than wool growing, and sufficiently so to pay the cost of commercial exchange, there could be no objection to continued importation. But as we have immense extents of country that are better adapted to this purpose than to any other, and are perhaps better suited to it than any other portions of the earth's surface, and for any other use are almost valueless, there would seem but little reason to question the wisdom of a great extension of this particular industry. With a heavy national debt upon our shoulders, it is a matter of vital concern whether we continue to import millions of pounds ot wool and millions of dollars' worth of woolen goods annually, or whether we make the best of our own resources and produce enough to supply home wants and a surplus for exportation. This is not a time for the honest patriot to sit down quietly in his chimney-corner and content himself with saying, "O yes, let the national debt be paid;" but if he have work in him, or enterprise, or capital at his command, there is need that he bring all into vigorous activity. A new and stern necessity is now upon us; we cannot afford to be idle ourselves, or leave any national resource undeveloped. The waste and extravagance of former years must be changed for economy and thrift; then, should it finally appear that this great debt has had the effect to make all industrious, enterprising and economical, we may happily realize that

"Sweet are the uses of adversity."

That we may readily increase the production of wool, I propose to show, by presenting somewhat in detail, the extent and wool-growing capabilities of different parts of the country, and first, of the West. In Minnesota, Iowa, Missouri, Eastern Kansas, Arkansas and Texas, are lands well adapted to general cultivation; but in all of these States are extensive prairies, which may much more profitably be devoted to pasturage than tillage. In Nebraska, Western Kansas, Western Texas, and New Mexico is an immense range, of nearly a million of square miles in extent, which has not rain enough for general cultivation, but much of which is adapted to wool growing, having at thousands of points water enough for large flocks, and grass without limit. Unless the natural grasses or the immense prairies and plains of the West can be utilized by sheep, a large portion of our country is, for the present, nearly valueless.

The principal difficulty in the way of extensive wool growing on the prairies is, the transient character of the prairie grasses, almost all of which are killed by the first frost, and afterwards are neither palatable to stock nor nutritious. This involves the necessity of an artificial supply for a long season. But where any part of the western prairies is thoroughly pastured, a change takes place in the herbage; annual plants are replaced by perennial grasses; in most cases this occurs spontaneously, in other places the intervention of man is required. Each succeeding year the difficulties will diminish, as the herbage changes and cultivated grasses and various forage crops are introduced, and buildings and other shelters and conveniences are provided.

Kansas is a beautiful State, many parts of which are well watered, have an abundance of stone for building or fences, and of coal for fuel, with unlimited pasture and comparatively short winters. It is to be regretted that the majority of settlers in this enterprising young State are endeavoring, notwithstanding their light annual rainfall, to pursue the mixed husbandry of the older States instead of directing their energies mainly to the raising of sheep and wool. I am glad to know that gentlemen from Ohio are taking flocks into Southern Kansas, a region which, as it appears to me, is second to none in the whole West for their purpose: they will add to the wealth of the country, and, I doubt not, secure large profits to themselves.

New Mexico already contains nearly a million of sheep, the wool of which is hairy and coarse; but the improvement already made in some flocks by the introduction of better rams, demonstrates that the sheep of the Territory may be turned to good account, and that the soil and climate are admirably suited for the growth of some kinds of wool. Of the adaptation of the greater part of Texas to the raising of stock there is no doubt, and therefore nothing need be said here. We ought not to be surprised if, at no distant day, Texas takes the lead of all the States in the production of wool.

But there is another region even better adapted to the growth of wool than the great West. From Virginia to Alabama, through parts of Kentucky, Tennessee, North and South Carolina and Georgia, extend the Allegheny or Appalachian range of mountains, having a length of some six hundred miles and a breadth of more than one hundred, and, including the comparatively rough country on both sides, an area of 80,000 square miles. Some of these mountains reach an altitude of 6,000 feet, but a general average of the range is about 2,500. This elevation materially affects the climate for 265 feet or thereabouts of perpendicular height, in its influence on temperature, and vegetation is equivalent to a degree of latitude further from the equator. This mountain region consists of a series of nearly parallel ridges, between which are valleys of great fertility and beauty, which produce in abundance all crops necessary for the sustenance of man or animals. This section is every where well watered, and the soil is well adapted to the growth of indigenous and cultivated grapes; it has also abundance of water-power for factories, and great store of valuable minerals.

It is a wonder that this hilly country has not been covered with flocks and made a source of untold wealth; but it seems that the only form of industry to which it is adapted has never been fairly introduced. The Allegheny region, south of Mason and Dixon's line, has an important advantage over the hilly region to the north of it, in Pennsylvania, New York and New England, in the milder climate of its winters. On the other hand, much of this mountain region is in a wild state and covered with timber of more or less value, and still the haunt of wolves, panthers and bears; but gradually these wilds will be cleared and covered with grass, and the wolves made to give place to more profitable animals.

In addition to the hilly country already referred to, which is fitted by Nature for little else than wool growing, the South in general is well adapted to the production of wool. It corresponds in climate with those portions of Europe where the vine and white mulberry flourish, and which are there supposed to be exclusively suited to the growth of the finest wools. It is sometimes said that the southern country is not as congenial to the growth of grass as the northern; but those who have seen the wonderful development of the indigenous grasses through almost the entire South, and the success with which the cultivated grasses are grown where proper care is taken, will hardly doubt that it is naturally a grass region. In most parts of the South grass has never been a special object of culture as at the North; the cotton plant has possessed the soil, and not less the minds of the people. New lands are cropped with corn or cotton as long as they will pay the cost of tillage, and when they will do that no longer they are abandoned to grass or weeds, and new lands are cleared. With such a system the North would be no more a grass country than the South.

Heretofore much of the labor at the South has been directed to the production of two or three great staples. Comparatively few animals are kept; neither wool, beef, pork, nor dairy products have been produced in quantities sufficient for home consumption, much less for exportation. Should it be found impossible for land-owners to obtain hereafter the labor necessary to grow cotton as extensively as formerly, they have in wool growing an excellent resource, and one that requires less labor than any other form of husbandry. Sheep, by that vital alchemy which enables them to transmute the lowliest plants into the most valuable of products, will soon, if permitted, restore that country to a measure of its former wealth and prosperity. The large estates common at the South will give their owners great advantages for wool growing over the small farms and high-priced lands at the North, where, from the greater density of population, the necessity of producing food is imperative. But if it shall be found that all the labor required for the culture of cotton and other southern staples can be obtained, it is none the less desirable that a change should be made in the system of husbandry pursued at the South. Cattle and sheep have not been kept there in sufficient quantities to make the best of the luxuriance of the vegetable world, nor sufficient to maintain the permanent fertility of the lands devoted to tillage. In any event, then, wool growing may prove a convenient and profitable change for the southern farmer, and that portion of the country may soon contribute its full proportion of this valuable article.

Also at the North may the production of wool be greatly increased. In New England, New York, Pennsylvania and Ohio, are extended regions of mountain or hilly land, besides many large tracts and innumerable smaller ones which, from the rocky and uneven character of the surface, are better adapted to the pasturage of sheep than to any thing else. These lands to a great extent are no doubt already devoted to this purpose, and much profit is consequently secured which, but for sheep, would be lost. But if necessary the number of sheep might be greatly increased through all the Northern States, not only on lands unfitted to any other industry, but also on lands which are best adapted to tillage. A good system of husbandry requires that a complement of domestic animals be kept for the purpose of aiding man in his labors, or converting into articles better adapted to human food or materials for his clothing, some of the direct products of the soil. A secondary purpose which they subserve, though not much less important, is that of converting waste materials into manure, with which the fertility of the land is maintained. For these purposes horses, cattle, sheep and swine are all employed, the choice between them, or the proportion of each which should be kept to insure the largest profit, will depend on soil, location, and various circumstances. The horse is long before he is ready for service or market, and is not used for food, but he is a noble animal, and we cannot do without him. Neat cattle labor when required, and their beef, milk, butter and cheese make them not only profitable but indispensable. The hog, by his excellent powers of digestion, is enabled to render essential service to the farmer, and is likely to retain his popularity in spite of the prejudices of Jews or Gentiles. Sheep make a valuable contribution to our comfort in their wool, and to our food by their mutton. All of these animals have their special uses and are a source of great profit to man, but perhaps we do not claim too much for sheep when we say, that in proportion to their original cost and the care and expense they involve, none of the domestic animals pay better.

Should any one ask what variety of sheep will pay the best? I reply that this is a question not possible to answer, without taking into consideration a variety of circumstances. When sheep are kept in large flocks and at a great distance from a mutton market it is probable that fine-wooled sheep are entitled to the preference; but when kept in small flocks as a part of a system of mixed husbandry, and near a good market for lamb and mutton, it is probable that the sheep which come to maturity sooner weigh heavier pay better. But this is not a question of such practical and importance as it may appear, and perhaps it ought not to be settled even if it were possible to do so. Our manufacturers require different styles and qualities of wool, which cannot be produced by one variety of sheep, it would therefore be unfortunate if all of us, from the hope of securing the largest profits, should be induced to keep the same variety. It would seem more desirable to ascertain what qualities of the different styles of wool are needed by our manufacturers, and what varieties of sheep are best adapted to supply this want, or best fitted for any other special purpose to which sheep can be applied.

The wools imported into the United States are wanted because they are either finer, longer, or cheaper than what we raise. Fine wools, suitable for the best broadclothes, are not produced by us in sufficient quantity; we therefore import such wool at a high price, and also great quantities of fine cloths which we ought to be able to manufacture at home, and should be if we had a sufficient quantity of suitable wool. We also imported largely of the long, lustrous, combing wools, of which worsted fabrics are made; almost all the woolen goods imported from Great Britain are made from wools of this description. These styles of wool, the finest and the longest, are what we ought at once to endeavor to produce in addition to the valuable wools which we at present supply to manufacturers. Of the particular merits of the several families of the Spanish merino or of their Saxon, Silesian, French or American descendents, it is not necessary that I should attempt to inform you, or of the comparative value of Leicesters, Cotswolds and Lincolns for the producduction of lustrous combing wools.

But of the adaptation of particular breeds for producing mutton it may not be out of place for me to offer a remark or two, especially as the choice among mutton sheep must sometimes be determined by reference to the wool market. Mutton does not appear to be a favorite article of food with the American people, yet the amount consumed is far from inconsiderable. I have been told by butchers in Cleveland that the value of the mutton sold in that market at this season of the year is about one-fourth that of beef, and in the summer months, when lamb is in season, the proportion is near one-third. In New York, the last market before the Christmas just past, there were 6,434 head of cattle sold and 17,486 sheep. This is less than the proportion of mutton consumed in several European countries, where it is thought that mutton can be produced at less cost than beef, and where it is equally esteemed. If the consumption of mutton were considerably increased in this country it is probable that the health of the people and the profits of the farmer would be improved by the change.

The question has been asked whether the sheep which produce the finest wool will not also produce the best mutton, and enable us to dispense altogether with the class of mutton sheep. The comparative excellence of merino mutton is not a question for argument but simply one of taste; but the earlier maturity of Leicesters and Southdowns, and the greater weight of Leicesters, Cotswolds and Lincolns, aside from any real or supposed difference in the quality of their mutton, appear to have given the preference to all of these over the merino. Another fact even more conclusive may be mentioned, the lustrous character and length of Leicester, Cotswold or Lincoln wool are not in the least impaired but rather improved by high feeding, while the carding and felting qualities of merino wool are materially changed by the same treatment.

So far as the quality of the mutton alone is concerned, the Southdown is entitled to the preference, and this variety is hardy throughout the North, keeps easily and matures early. But the wool of the Southdown is neither fine nor long, it belongs to that class of medium wool, of which the supply is at present much better than of other styles. The Leicesters, Cotswold and Lincolns are almost equally as desirable as the Southdown for mutton, making up in quantity what they may be supposed to lack in quality, and all produce that description of combing wool which is at present in demand for worsteds. These long-wooled sheep are perfectly hardy in Canada, in the Northern States and as far south as Kentucky and Virginia, and probably still further south, but of that I cannot speak from personal observation. It should be borne in mind, however, that the health of flocks depends more on individual management than on breed or latitude. When the health of flocks or families is injuriously affected we are more inclined to lay the blame on Providence or the climate or unhealthiness of the country, or anything, rather than upon our own mismanagement, where it more likely belongs. On my farm a flock of about thred hundred Leicester sheep has been kept for more than thirty years. In the main they have been healthy and profitable; but one season, several years since, the lambs after weaning were put upon a piece of wet land where they remained until they all took the rot and ultimately died. This was the only instance in which that disease made its appearance in the flock. Shall I say that Leicester sheep are not hardy in Northern Ohio, or that Ohio is too low and wet for Leicester sheep, or shall I with more truth say that some body made a blunder. Instead of endeavoring to find a breed that will prove hardy in spite of neglect and mismanagemet or that will prove most profitable under all circumstances, it were better that we study well the adaptations of our lands and location, and learn to take the best possible care of whatever breed we may select. The best breeds in the hands of some will deteriorate, while in the hands of others they will steadily improve. If farmers would give more thought to the hygienic condition of their flocks and herds, they would find themselves repaid not only by large profits but almost certainly in the improved health of themselves and families, for the sanitary regulations that hold in the stable and sheep-fold are equally applicable in the house.

It is then apparent that we have an immense extent of country west, south and north, which is better adapted to wool-growing than to anything else, and also that the production of wool may be extended in all parts of the country without prejudice to any other interest. And further that the present condition of the South and the financial condition of the whole country furnish reasons for special force for greatly extending this form of industry. We can, if we please, rapidly increase the growth of wool. A few years would suffice to make this the greatest wool-growing country in the world, instead of being as it is at present behind several that have fewer natural advantages and much less than our extent. The United Kingdom of Great Britain and Ireland, with little more than 120,000 square miles and a population of 30,000,000, has 45,000,000 of sheep and produces 260,000,000 pounds of wool, and imports 100,000,000 more. France has 45 millions of sheep. Germany 60,000,000, while the United States at the time of the last census had little more than 22,000,000.

But should there be such an increase in the qantity produced, how will it affect Ohio wool-growers? Manufacturers tell us that were they protected against the pauper labor and enormous capital of Europe, and supplied with the raw material in abundance, they could greatly extend their operations, furnish the manufactured article better and cheaper than it could be imported, at the same time pay a better price for the raw material than we could otherwise obtain, and in addition to all this, create a home market for almost everything the farmer would have to sell. To this there is probably a wool-growers' side as well as a manufacturers' and I have no doubt that this association will endeavor to see it, as they doubtless will, to see where the interests of the growers and manufacturers are in harmony. I do not, at this time, propose to enter upon the discussion of questions of such difficulty and delicacy—in their proper solution, not growers and manufacturers only but the whole country is deeply interested.

But should the effect of increased production be what some will be likely to fear, a reduction of price, for is that to be regarded as a great evil? The price of woolen goods is at present very high, too high for most of us and far too high for thousands whose income does not keep pace with the increased price of the necessaries of life. The farmer, doubtless, desires as he has the right to share equally with the manufacturer the profit on their joint product, but he does not desire to see the world go half fed or half clothed so that he may put money in his purse. In the division of labor which civilization necessitates the farmer takes for his mission to supply mankind with food and material for raiment. He blends his labor with the sunshine and the rain in order to draw from the great storehouses of earth and air those necessaries which because man does so little to create them and mature so much we not inaptly call the bounties of Providence. Shall he take these gifts as if they were all his own, and dispense them with niggardly hand, wishing God were less bountiful so that his own share of the profits might be larger. Instead of this he will aim to produce more and better and cheaper continually, if his profits are lessened by the abundance which his own labor and skill have created, instead of complaining of the abundance he will seek by improved methods to reduce the cost of production still further. He will be happy in the fact that his countrymen have enough to eat and to wear, and would glory especially did he know that they had the best of flour, meat, butter, cheese, fruits and vegetables to eat; and the best of linen, cotton, wool and silk to wear, and that these were all so abundant as to be within the reach of every man, woman, and child that needed them. The man that farms in such a spirit will be enobled by his calling, and whether he becomes rich or no will not fail to be blessed in his labors. Gentlemen, when men try to frighten you from an increased production of wool by telling you that such increase will make wool cheap, look them squarely in the face and say—Thank God!

But whatever may be the price of wool in the future Ohio growers ought to make a large profit for many years from the sale of superior stock sheep. The demand for really good sheep of any variety cannot fail to increase if there is any general extension of wool-growing through the country. Ohio is at present the principal wool-growing State, and to this State purchasers from the South and West will come if we have as we ought the best of every variety to sell at a fair price.

Besides this, Ohio is an excellent State to move from, and an additional source of profit to Ohio wool growers will be realized when they send their sons or go themselves to establish large flocks in regions where there is more room and land is cheaper. Shall we always content ourselves to grow wool as we have done in Ohio, with flocks averaging little more than 100? Does it require all the brains or capital of an Ohio farmer to manage 100 sheep? Where there is elbow room sufficient, cannot an intelligent Ohio farmer direct the feeding and breeding and sell the products of 10,000 sheep as well as of any smaller number? Other forms of industry cannot be indefinitely extended for want of labor and capital; to produce double our present quantity of wheat, corn, or cotton would require a great additional expenditure of labor, but to double the quantity of wool produced in the country would not require another man and scarcely another dollar, but simply more room and that is precisely what we have in this country. Tillage is not the only or even the principal source of wealth to the farmer; our domestic animals will do for us, if we allow them, much more than we can do for ourselves. Why, then, should their numbers be limited by anything save the means for their subsistence? Why should we not produce millions of pounds of silk and hundreds of millions of pounds of wool annually? Why not let the land literally flow with milk and honey? Let man exercise benificently and abundantly the dominion which he rightfully holds over the brute creation and his comforts may increase indefinitely, and while he is made the richer no one is made the poorer or need envy his abundance.

Gentlemen, from the subject I have presented for your consideration you will perceive that I have taken it for granted that this association was not organized for any narrow or selfish purpose. My acquaintance with many of its members gives me the assurance that its purpose was less to promote individual profit than the general good. It is with this conviction that I have ventured to present an aspect of the general subject, in which every citizen of the country is interested but little less than ourselves, and which I am well aware has not for you the merit of any novelty. Permit me, in conclusion, to express the hope that the result of your deliberations here, and of your labors at home, may prove highly beneficial to yourselves and to the country.

SWINE,

like the sheep, were not enumerated by the assessors until 1846, at which time 1,405,094 head were reported, valued at $2,238,876 or a little more than $1.50 per head. In 1865 there were 1,455,092 or 50,000 more than in 1846 returned, valued at $6,706,001 or $4.60 per head. The maximum number of hogs reported by assessors at any time between 1846 and 1865 was in 1854 when 2,887,015 were reported, valued at $5,558,487 or nearly $2.00 per head.

But these statistics are not a correct exponent of the swine in Ohio—the enumeration is made in April or May, at a time when scarcely any other than swine kept for breeding purposes are enumerated—all under six months old on the first of June not being taken into the account, whilst the fat and surplus swine, which constitute the great majority, were either killed during the packing season, or shipped to eastern cities. Within the past ten years swine maturing early have been in greater demand than other breeds, and it is no uncommon thing to find many yearlings and under slaughtered and in market. There is no data at hand from which the number of swine killed for family use; of hogs packed at the various points within the State and which were grown in Ohio; nor of those shipped east on foot can be ascertained. There are undoubtedly millions of swine which are too young to be assessed and which are either shipped or slaughtered before the next annual visit of the assessor, so that our swine statistics are the least satisfactory or reliable in showing the extent and value of this species of live stock, of all the statistics collected in relation to live stock.

The swine in Ohio have always been healthy—true there is an occasional epidemic breaks out among them where they are kept in considerable quantities, but in the aggregate the losses by disease are comparatively insignificant. Of late years it is more rare than formerly to find them affected with *measles;* and so far as *trichinæ* spiralis is concerned, they are as yet entirely exempt.

The condition of the live stock interest must be very satisfactory to breeders and growers in the State—horses, mules, cattle, sheep, swine and poultry, all commanding remunerative prices, and the supply of none equal to the demand, presents a very encouraging field of operations to those engaged in these respective pursuits of breeding or rearing.

From statistics at command it appears that during the past 20 years Ohio had—

	Average for 20 years.	In 1865.
Horses	618,682	678,456
Cattle	1,508,375	1,244,327
Sheep	4,048,665	6,305,796
Swine	2,048,750	1,455,092

We will now devote a few pages to showing the average number of acres tilled and products of the several kinds of crops grown in the State.

The first *State* statistics which we have of wheat and corn were those collected in 1850, and as a matter of course were the crop harvested in 1849. In the following table will be found a statement of the average number of acres in wheat and corn, and the bushels harvested therefrom from 1850 to 1864 (crops of 1849 and 1863). The crops and acreage of rye, barley and buckwheat, oats and meadow, are from 1858 to 1864 (crops of 1857 to 1863). Flax and sorgho from 1862 to 1864 (3 years). Potatoes from 1860 to 1864 (5 years). Tobacco and clover from 1863 to 1864 (2 years).

CROP.	Yrs.	Annual average in acres.	Annual average crop harvested in bushels.	Average bushels per acre.	Av. p. ct. of entire area cultivated.
Wheat	15	1,700,282	20,679,487	12.16	25.5
Corn	15	2,073,489	64,954,993	31.33	32.4
Rye	7	71,290	707,026	9.91	1.0
Barley	7	86,563	1,632,812	18.86	1.3
Buckwheat	7	64,116	834,968	13.02	0.9
Oats	7	668,977	14,825,460	22.15	10.
Meadow	7	1,376,088	1,612,910*	1.17	20.4
Clover	3	375,274†	283,124*	0.82	5.5
" Seed			125,589	0.36	
" plowed down		(32,181)			(1.)**
Flax	3	70,340	470,865	6.69	1.0
" Fiber			2,740,532‡	38.95	
Potatoes	5	82,912	6,540,977	78.88	1.2
Tobacco	2	34,292	26,087,695††	760.6	0.5
Sorgho	3	30,433	2,569,341‡‡	84.4	0.4
" sugar			26,823***	0.88	
		6,634,056			100.

* Tons of hay, exclusive of clover plowed down.
† Including the clover plowed down.
** Per centage of area in clover.
‡ Pounds of fiber.
†† Pounds.
‡‡ Gallons of syrup.
*** Pounds of sugar.

From this it appears that there is an annual average of 6,634,056 acres cultivated. If we represent the proportions of the entire State, on a single farm of 400 acres, then there would be just 100 acres devoted to crops above enumerated, and this 100 acres would be divided as follows:

Wheat..... 25.5 acres, producing 310 bushels in the aggregate.
Corn ...... 32.4 " " 1015 " "
Rye .... 1 acre " 10 " "
Barley..... 1.3 acres " 23½ " "
Buckwheat 1 acre " 13 " "
Oats....... 10 acres " 221½ " "
Meadow. .. 20.5 " " 24 tons of hay.
Clover..... 5.5 " " 4½ " and 2 bushels of seed.
" ..... 1 acre, plowed down.
Flax ...... 1 " producing 6¾ bushels of seed and 39 pounds fiber.
Potatoes... 1½ " " 98½ "
Tobacco ... ½ " " 380 pounds.
Sorgho .... ½ " " 42 gallons syrup and ½ pound of sugar.

On these 400 acres the average of live stock is nearly 11 head of horses, 26 head of cattle, 62 sheep, and 33 swine; and the average population is 36 persons on this amount of land.

[I had prepared tables showing in detail the average acreage and production of the several regions of the State, as, the Miami Valley, Scioto Valley, etc., etc., together with a statement of each particular crop; but the State printer, at a late hour, informed me that there was no space for the statements and tables, unless I saw proper to exceed the limits of the size of the volume as designated by the Legislature; and not having time to rewrite in a condensed and compact form, I am obliged to omit them abruptly, and select the contributions on sorgho and grapes which were intended to form a portion of the body of this article, as the best closing I can make under the circumstances.—KLIPPART.]

SORGHO.

The sorgho crop has attracted considerable attention, and attained respectable proportions. I wrote to several gentlemen in various portions of the State, competent to impart information on many points connected with sorgho culture and manufacture in the State. The following paper from Mr. A. H. WRENN, of Mt. Gilead, is deemed worthy of a place in this connection:

DEAR SIR:—Your favor of the last of February, containing inquiries on the SORGHO *question*, and it being a busy season of the year with me, I have not time to do the subject justice—volumes might be written on the questions propounded. As I have taken considerable interest in the matter ever since the first *introduction* of it in this country, I will briefly answer some of your questions.

1st. The acclimation of the plant seems to be a mooted question. I think it does not acclimate as ready in this State as corn, wheat, oats, etc.; yet there is no doubt, with proper management, it can always be made a paying crop, as it will make molasses at different stages of its growth—also profitable for STOCK feed.

2d. My impression is, that it succeeds better in the *southern* part of Ohio than in the *northern*. I believe it *succeeds better* still further south—not in growth, but in saccharine matter; also preserving its identity.

3d. I think there is no doubt that it loses its saccharine qualities in Ohio by repeatedly planting the same kind of seed.

4th. My opinion is, from my own experience and observation, that *manuring* with any artificial FERTILIZER does not *enrich* the juice but *only increases* the size of the *cane*; and am of the opinion, that very frequently the juice partakes of the flavor of the fertilizer. I have been most successful in changing my seed at least every TWO YEARS—sending further south for it—though, in many instances, have known good yields from qualities of seed kept for several years in the North-western States. Very much depends upon the selection of seed, the kind of soil, the season, the mode of culture, etc. The kind of soil I prefer, is good, dry corn land; sandy loam—not "muck"—as a fertilizer. Plow under clover or some other green crop, and cultivate thoroughly. Wet seasons give a large growth and weak juice; dry seasons rich juice, but small cane, requiring a *strong mill.*

5th. I have no hesitancy in saying that I believe that any and all the varieties I have ever experimented with will mix together, if planted successfully by each other, and that they will hybridize with broom-corn, chocolate-corn, etc. I do not think that the first year of hybridity will have much effect upon the molasses, but to plant the seed after hybridizing will be very deleterious to the crop in quantity and quality of saccharine matter. I have worked up some cane that was so tinctured with broom-corn, that it was sickening to be over the evaporator while boiling; the juice also being weaker, and making a poor article of molasses—in a few instances being so near like broom-corn, it was comparatively worthless and very insipid; some stalks nearly dry as the parent broom-corn.

6th. I see nothing to hinder *sorgho* from becoming a permanent crop in Ohio—croakers notwithstanding—particularly for home consumption; and with a riper experience and increased facilities for manufacturing, believe it can be made profitable to supply sections that cannot raise it.

7th. As to soil, I have answered this question in the 4th answer. I believe it is now a conceded point, that when the seed is in the dough state it is the richest in saccharine matter, and the most pleasant and *profitable to work.*

8th. As stated before, the most suitable time for harvesting and working up, is when the seed is in the dough; but frequently good molasses can be made from the cane as soon as the head or panicle shoots out, and from that on until the seed ripens; therefore accommodating itself, different from the most of crops, to the carelessness, backwardness or otherwise of the owner. My plan for several years past has been—and others have been convinced to adopt the same course—if frost will admit of it, to cut the seed when the cane is in the dough, to shock it with blades and tops all on in large shocks in the field, in the same manner as corn. It keeps better in that form than any other. When cured two or three weeks, as the case may be, I then commence stripping, topping and manufacturing as fast as I can. The blades and tops always pay for harvesting, as they are ready to store away. When stripped in the field standing, and left so for several days, it frequently *sours* or dries up, and blades and tops nearly a loss; when stripped, and the cane hauled in *piles* while green, as some do, it frequently spoils. I have had cane to freeze solid, and by working it up as soon as thawed out, made a very good article of molasses; but I think it rather risky to let winter catch it on hand. I believe it might be protected to some extent through the winter, provided the cane was matured, by puting it in long *ricks* and covering it two or three feet with corn fodder, straw or hay, but don't believe it is as profitable as manufacturing earlier.

9th. I do not think it will justify every farmer to purchase machinery to manufacture just for his own use; rather too much of an outfit, without he intends raising to sell, or to work for neighbors. Neither do I think it will ever pay for many large manufacturing establishments to start up at several thousand dollars expense, exclusively for the *northern sugar-cane*, as the working time is too short, say from five to eight weeks also, it will not pay to haul the cane more than three or four miles. My opinion is, the best plan is small manufacturing establishments, every four or six miles, all over the country. Let a man of some experience make his calculations how much he can work up in a given time, and get suitable machinery, and put up such buildings as will answer the purpose. Said buildings can be turned to some other account, when not used for sorgho.

10th. A great many versions could be given to this question. For a neighborhood establishment, I would prefer a strong *two-horse* vertical mill—weight 1000 or 1200 lbs, all arrangements and everything all perfect—that would express juice from good cane in 10 hours to make from 75 to 100 gallons of syrup, and a good evaporator (there are many kinds) to match, always making calculation for the mill to have greater capacity than the evaporator.

11th. As yet there is no method as reliable for making sugar from sorgho as making whisky from rye or corn; and my faith is not strong enough to believe the time will ever arrive. Notwithstanding there are some humbugs in the shape of patent nostrums, perambulating the country, crying sugar, but after they are gone, their victims find themselves minus a few dollars without value received. Yet I believe the time is coming when considerable sugar will be made. There is no doubt it will always pay to raise the cane for molasses alone, or for stock-feed alone.

12th. The answer to this question will be very similar to the last. I do not think that the northern sugar-cane can ever be converted into sugar, with as much certainty as to profit, as it can be manufactured into syrup or molasses.

I have endeavored briefly to answer all the questions propounded. I will close by saying: Get good seed from reliable parties; take good, dry corn land; plow deep and thoroughly pulverize; plant in drills or hills, so as to have double the number of stalks as you would of corn. Don't plant until the ground gets warm; cover about three-quarters of an inch deep. Commence cultivating as soon as it can be seen across the row. Keep the ground clean and mellow until the plants are three feet high; it will then take care of itself until ready for harvesting. After following the directions given above on harvesting, have all your accoutrements in complete working trim. Plenty of good dry wood; force enough to manage affairs; have defecating and finishing apartments; boil rapidly, until nearly done—then slow. Don't stop the fire until your day's work is done; don't *scorch;* keep everything clean, and you will have success.

GRAPES.

Notwithstanding grapes have been grown for many years in Ohio, yet the present is the first year in which any returns have been made of the number of acres in grapes, or the product of the vines. From the following letter of Mr. BATEHAM, Secretary of the Lake Shore Grape Growers' Association, it would appear that these statistics are not reliable. I am aware that the blanks for the assessors were distributed at a very late day, and in some instances the County Auditors distributed the blanks of the preceding year.

J. H. KLIPPART, ESQ.—*Dear Sir:* I wrote you some days since, requesting you to send me the statistics of grape-growing, as gathered by the assessors. I now wish to say you need not take the trouble to copy or send them, as they are no sort of use to anybody. I find that one-half the assessors gave no attention to the inquiries at all, and others did not set down one-half the amounts in their townships. For instance, in this township of Painesville, we have over thirty acres set in grapes, and the assessor returned just *three,* (which was my own vineyard;) and, in our county, I am sure not one-half are set down. The same is true of other counties; (see the enclosed letter from R. B. Bullock, of Lorain county.) Now, in behalf of our Association and the public, I wish to protest against any publication of such statistics, as they are only calculated to mislead and do mischief. We must try some plan to compel the assessors to do their duty better. How can this be done? Please write me.

Truly yours, &c.,
M. B. BATEHAM.

The following descriptive list of grapes grown in Ohio was prepared for this report by Mr. GEORGE W. CAMPBELL, of Delaware, Ohio:

Dear Sir: I herewith furnish, as you request, a brief description of the principal "grapes grown in Ohio," which have come under my notice. Some of those described are new, and not much grown; but some account of them may be useful to the many who are seeking grape-knowledge, and who are anxious to know what varieties are most profitable to plant.

I divide them into three classes, according to color. First, white, light-green, or amber. Second, red, maroon, or wine-colored. Third, black grapes.

I. WHITE, LIGHT-GREEN OR AMBER.

Allen's White Hybrid.—One of the finest grapes in cultivation, when well grown; said to be a true hybrid cross between the Golden Chasselas and Isabella; a strong grower, when well established; productive, and seemingly as hardy as the Isabella; Somewhat liable to mildew in low, damp situations, and in unfavorable seasons; does best in warm, dry locations; bunches large, rather compact; berries medium to large; round, nearly white; skin thin, semi-transparent; flesh tender; seeds small and few; flavor, sweet, rich and delicate; quality, best; ripens early, about the same time as the Concord.

Anna.—Vine of hardy, compact, rather dwarfish habits; supposed to be a seedling from the Catawba; moderately productive; branches and berries medium, covered with thin, whitish bloom; has considerable toughness of pulp at the centre, with a pleasant and high-flavored juice next the skin; too late in ripening for this locality; but would, probably, be first rate, where it would ripen perfectly; makes a fine, very high-flavored wine.

Cuyahoga.—Is said to have originated near Cleveland; a handsome and good grape when perfectly ripened; but has not fulfilled its early promise. The vine, when young, is liable to mildew; and is rather tender in winter; bunches usually large and compact; berries rather large; skin thin; flesh tender, delicate, sprightly and well-flavored; desirable, when it can be produced in perfection; but requires as long a season as the Catawba.

Cassady.—Vine of good habit; free grower, and hardy; bunches and berries rather small; compact; skin thick; flavor sweet; quality good; productive, and said to make a fine white vine—ripens with Isabella.

Clara.—A very handsome grape, somewhat resembling Allen's Hybrid; rather tender, requiring protection in winter; also subject to mildew in unfavorable seasons; bunches long, rather loose; berries medium; skin thin; color light amber; flavor delicate and fine; rather late in ripening.

Lydia.—This variety originated on Kelley's Island, and is supposed to be a seedling from the Isabella; vine of good growth; tolerably hardy, and moderately productive; bunches medium, not usually compact; berries large, oval, and handsome; skin rather thick; flesh tender, delicate and high-flavored; ripens early—about with the Concord; regarded as one of the most promising light grapes.

Maxatawney.—Originated in Pennsylvania; vine vigorous, healthy, hardy and moderately productive; bunches large, long, rather loose; berries full, medium size, slightly oval; color, light green, with whitish bloom, tinged with amber next the sun; flesh tender; flavor sweet, and very good; rather late in ripening—nearly with Isabella.

Rebecca.—Variable. In some soils and locations vigorous, productive and healthy; in others the reverse; appears to do best in light, warm, rather dry soils; and when successful, is one of the best and handsomest light grapes; when well-grown, the bunches are medium to large; berries large; color light-green, tinged with amber; flesh tender; seeds small; flavor sweet, rich and delicate. The vine should be lain down and protected in winter. Ripens early.

Taylor's Bullitt.—A rampant-growing, wild-looking vine; hardy, but subject to *oidium* or mildew. In rich soil its growth is too rank, and its clusters poor, small and straggling. On heavy clay soils, its bunches are sometimes large, compact and handsome, though the berries are small. As a table grape, inferior; though it is said to make a fine, white wine. It varies very much in different locations. By some regarded unworthy of cultivation; while others esteem it both for the table, and for wine. It has not proved valuable at Delaware.

II. RED, MAROON, OR WINE-COLORED.

Catawba.—Too generally known to require extended description. A good grower, quite hardy and productive, and more extensively planted than any other variety in the United States. Unfortunately, it is too late in ripening for most northern localities; and in many places is very liable to failure by mildew and rot. Where it does succeed, and the season is long enough to bring its fruit to perfection, the Catawba is still one of the finest and most valuable of American grapes, both for the table and for wine. It seems to do better upon the islands in the western part of Lake Erie, and within a district of a few miles wide along its southern shore, than elsewhere in Ohio. Good crops are occasional along the course of the Ohio River, and in some other sections of southern Ohio; but success is by no means certain.

Charlotte.—A new variety from Kelley's Island. Has been on exhibition for several years; but not yet introduced. In general appearance, it resembles the Diana; but is said to be earlier in ripening, hardier in winter, more productive, and of better flavor. Regarded as a very promising new variety.

Diana.—A very variable grape. Seems to require a warm, dry, and rather thin soil to produce well. Of little use in rich, alluvial soil, where it runs greatly to vine; often mildews and rots; and produces very little fruit. When well grown, in favorable situations, the Diana is productive, and tolerably hardy. Bunches rather large, compact, sometimes shouldered; berries full medium size; color pale red, or wine-color; when fully ripened, nearly without pulp, sweet and high-flavored. One of the best, both for table and wine. Ripens nearly with the Isabella.

Delaware.—First sent out from Delaware, Ohio; from which place it takes its name. Unquestionably the finest native grape yet known and introduced. Unlike the Diana, it requires a rich, fertile soil to produce its best results. It is, however, in some seasons, and in low, undrained soils, subject to *oidium*, causing the leaves to fall prematurely; and the fruit then fails to mature. When well-grown, in favorable soil and situation, it is vigorous and healthy, exceedingly productive, and bears fruit of the most exquisite flavor and great beauty. Bunches medium, shouldered and compact; berries medium; skin thin; color a reddish purple, or light maroon; flesh tender and delicate; very slight, soft pulp; flavor sprightly, vinous, rich, sweet, and of the highest and best quality. Unsurpassed, both for table and wine. Ripens during September—sometimes last of August, in favorable locations.

Iona.—New, and not fully tested in Ohio. Vine moderately vigorous, hardy, productive and healthy, so far as known. Bunches large, shouldered; berries large, oval, moderately compact; color rather lighter than Catawba; skin thin; seeds small; flesh tender and delicate to the centre; flavor vinous, sweet and rich. One of the most promising of the new varieties. Ripens with the Concord.

Mottled.—Originated on Kelley's Island. Vine of moderate, healthy growth; fully as hardy as the Catawba, from which variety it is supposed to be a seedling. Bunches medium to large; compact, often shouldered. Berries full medium; color rather darker than the Catawba, mottled or spotted with still darker shades. Quality, good; always rather pulpy; flavor, sprightly, vinous, and pleasant. Makes a distinct and fine-flavored wine. Rather late.

Rogers' Hybrid, No. 1.—Very strong, rapid grower; tolerably hardy; productive. Bunches large; berries very large; color variable, from light green and amber, to pink or light red; skin thin; flesh tender; not high-flavored, but sweet and good. Ripens with Isabella.

Rogers' Hybrid, No. 3.—Vine of strong, healthy growth; very hardy, and productive. Bunches medium to large; berries large, slightly oval; color about the same as the Catawba; flesh tender; sprightly, vinous and sweet, with a slight foxy flavor when very ripe. Ripens with the Delaware. One of the best of Rogers' Hybrids.

Rogers' Hybrids, Nos. 5, 9 *and* 13, are all red, or Catawba-colored; strong, healthy vines, and productive, with fruit of good, but not extraordinary quality. May be found, upon further trial, valuable for wine; and are equal or superior to some of the older varieties, such as Hartford Prolific or Concord, for the table. Ripens as early as the Isabella.

Rogers' Hybrid, No. 15.—Vine of very strong growth; moderately hardy, and very productive. Bunches large; berries very large; color dark red maroon, often mottled; rich and sweet, with a peculiar spicy, or aromatic flavor.

Underhill's Seedling.—A strong-growing, healthy vine; very hardy; appears productive. Bunches and berries medium to large; moderately compact; color red maroon; flesh tender; flavor sweet and vinous; slightly foxy. A good, and promising new variety.

III. BLACK GRAPES.

Alvey.—Vine vigorous; hardy and productive. Bunches medium, compact; berries small; skin thin; juicy, and nearly free from pulp; flavor spicy, vinous, and rich. Promising for table and wine. Early.

Adirondac.—New; not fully tested. Vine not very hardy—requires protection in winter. A rather large, handsome black grape with compact bunches. Claimed to be very early.

Concord.—Vine strong, healthy, hardy and productive. Very popular and planted largely. Adapts itself to almost all soils and locations. Bunches large, compact, shouldered; berries large, round, covered with bluish bloom; skin thick, but tender; flesh soft, slightly pulpy; flavor sweet and sprightly; not rich, and somewhat foxy. Good, but not first quality. A valuable grape for near-by market, and when fully matured, makes a fair red wine. Ripens early; middle to last of September.

Clinton.—A strong-growing, somewhat slender, but hardy and productive vine. Bunches medium, compact; berries rather small; colors early, but requires a pretty long season to ripen. Very acid and rough, till perfectly ripe and touched by frost, when it becomes sprightly, sweet, and very good. Makes a fine red wine.

Creveling.—A variety of recent introduction. Vine of good growth; seems healthy and productive. Bunches long, rather loose; berries medium to large, slightly oval; flesh tender; flavor delicate; sweet, slightly vinous, and very good. A fine grape, both for table and wine. Ripens early—a little before Concord.

Edinburgh.—Vine vigorous—not very productive; requires protection in winter. Bunches long, loose, shouldered; berries small, black, juicy, without pulp; sprightly, rich, and vinous; rather late.

Garigues.—A seedling from the Isabella, much like its parent; but said to be some ten days earlier.

Hartford Prolific.—Hardy, vigorous, and very productive. Bunches and berries medium to large; usually compact; flesh rather pulpy; flavor sweet, foxy; second or third-rate in quality, but planted largely on account of its hardiness, earliness, and great productiveness. Valuable for early market, as it is one of the first to ripen.

Herbemont.—A strong-growing variety; but quite tender in winter, and too late in ripening for most localities in Ohio. A very fine grape, with long, compact, shouldered bunches; berries medium or small; skin thin; without pulp; juicy, sweet and high-flavored. Fine for table, and for wine.

Isabella.—Well known as one of the best of the old varieties. It is, however, partially superseded by the Concord, which variety is hardier, earlier, and less subject to disease.

Ives' Seedling.—A variety of recent introduction, which has attained considerable popularity as a wine grape. Produces an agreeable red wine of fine quality; of more delicate flavor, but less body, than Norton's Virginia. The vine is hardy, healthy and vigorous. Bunches full medium, compact, often shouldered; berries of medium size, slightly oval, very black, juicy, sweet, vinous, and well-flavored; a little pulpy at the centre. Not more than second-rate for the table; but valuable as a wine grape. Ripens early—about the time of the Concord.

Israella.—New; not yet tested in Ohio. The vine seems hardy, and is of very strong, vigorous growth. Bunches large, long, handsome and compact; berries large, black, in appearance much like Isabella. Claimed by its originator to be earlier than the Hartford Prolific or any other native grape of good quality.

Lincoln.—Vine vigorous; healthy, but not entirely hardy. Bunches medium; berries small, black, juicy, rich, vinous and high-flavored. Rather late in ripening. A Southern variety; not specially valuable at the North.

Lenoir.—Much like the Lincoln; but distinct in foliage. Later in ripening, and less productive.

Logan.—Vine of moderate growth, healthy and very hardy; only moderately productive. Bunches medium, generally loose; berries full medium, oval, black, with little bloom; flavor sprightly, vinous, and good. Early.

Norton's Virginia.—When well established, a strong-growing, tolerably hardy, and healthy vine; exceedingly difficult to propagate, and very impatient of removal. Not very extensively grown in Ohio, but esteemed of much value for wine; producing a dark red wine of great strength and body; rather astringent, but of good flavor. Bunches medium, compact; berries very black, small, sweet, and sprightly, with dark red or purple juice. Rather late—requiring a season about as long as the Catawba.

Oporto.—Worthless.

Rogers' Hybrids, Nos. 2, 4, 19, *and* 33, are all black grapes having the same general characteristics and the same parentage. Of very strong growth, making large wood and abundant, heavy foliage. So far as tested, healthy, hardy and productive. Bunches and berries of the largest size, and quality good. No. 4 is the earliest; ripening with the Concord, or a little later. Nos. 19 and 33 ripen with the Isabella; and No. 2 is a little earlier than the Catawba. No. 33 has a dark crimson juice, and will probably produce a fair red wine.

Shaker, or Union Village.—One of the strongest growing vines known; but requires protection in winter. Healthy and productive. Bunches very large, compact, often shouldered; berries of the largest size, oval, black, covered with bluish bloom; flesh tender, slightly pulpy, juicy, sweet and good; flavored much like the Isabella, and ripens a little earlier than that variety.

To-Kalon.—A strong-growing vine of the Isabella character. Bunches rather large, but loose, sometimes shouldered; berries large, slightly pulpy; flavor sweet, and very good. Ripens a little earlier than the Isabella. Not very productive, and subject to both mildew and rot in unfavorable seasons.

Number and Value of Horses, Cattle and Mules, in Ohio, for 1866.

COUNTIES.	HORSES.		CATTLE.		MULES.	
	No.	Value.	No.	Value.	No.	Value.
Adams	7,118	$496,809	12,428	$256,579	327	$21,207
Allen	7,176	389,838	11,155	167,458	167	6,870
Ashland	7,804	517,113	15,660	285,470	156	8,570
Ashtabula	9,289	48,843	28,671	690,247	211	10,113
Athens	5,738	397,479	13,100	329,024	120	6,617
Auglaize	6,076	390,749	10,782	201,385	341	20,734
Belmont	10,134	838,295	15,684	460,196	167	13,146
Brown	8,394	657,797	10,910	268,131	441	33,521
Butler	11,219	935,590	14,781	395,197	369	32,180
Carroll	4,436	320,063	9,271	165,581	31	1,895
Champaign	9,069	760,977	15,042	449,148	266	30,981
Clarke	9,160	695,694	15,140	401,001	428	22,150
Clermont	10,178	741,510	11,870	308,910	658	44,740
Clinton	9,802	702,666	13,677	433,811	627	42,422
Columbiana	8,307	627,420	14,921	370,988	233	19,487
Coshocton	7,395	532,811	14,417	313,641	113	7,515
Crawford	7,676	454,016	14,547	256,995	95	6,353
Cuyahoga	11,554	795,140	21,813	558,966	278	19,857
Darke	11,532	703,765	18,296	302,673	119	7,000
Defiance	5,050	286,098	8,789	136,638	22	1,590
Delaware	7,981	569,074	13,396	347,553	293	19,283
Erie	5,889	413,021	7,786	239,299	63	3,610
Fairfield	10,555	625,015	18,514	358,904	271	17,750
Fayette	8,841	621,192	19,540	624,806	525	31,475
Franklin	13,905	891,280	17,221	518,210	550	25,226
Fulton	5,285	247,185	10,255	122,756	48	2,475
Gallia	5,714	410,995	12,840	270,034	220	16,713
Geauga	5,284	330,465	25,802	595,512	145	7,760
Greene	10,581	874,712	13,954	438,387	410	27,786
Guernsey	6,773	492,626	11,630	273,379	253	14,750
Hamilton	18,276	1,639,694	17,338	595,671	1,023	107,500
Hancock	9,548	444,129	17,141	242,666	165	7,673
Hardin	5,906	329,194	11,011	197,115	291	14,730
Harrison	4,971	368,000	8,215	172,444	105	6,665
Henry	3,471	154,819	6,260	77,555	17	792
Highland	11,601	75,322	16,350	400,532	1,135	67,078
Hocking	4,996	280,619	9,062	143,621	93	5,118
Holmes	6,657	351,788	12,359	166,775	71	3,515
Huron	9,633	604,759	17,306	472,255	80	5,015
Jackson	4,327	321,465	11,961	306,494	208	20,261
Jefferson	6.199	460,112	9,934	248,935	74	6,812
Knox	8,837	639,559	14,643	293,300	172	8,976
Lake	4,194	263,112	9,841	245,317	47	2,780
Lawrence	3,940	317,624	10,929	282,170	169	15,204
Licking	11,343	793,757	18,593	438,180	232	12,788
Logan	8,454	557,140	14,600	298,126	370	27,099
Lorain	9,231	586,514	24,479	560,911	127	6,740
Lucas	4,709	268,378	7,121	119,177	63	3,565
Madison	7,208	472,083	14,879	622,022	502	36,530
Mahoning	7,126	496,940	15,276	419,752	274	13,180
Marion	6,461	481,678	12,919	329,746	71	5,915
Medina	7,693	521,079	17,129	509,082	96	6,910
Meigs	5,075	403,999	11,565	284,010	207	15,142
Mercer	5,955	343,027	9,545	140,667	56	2,630
Miami	9,434	770,225	13,663	315.208	208	17,704
Monroe	4,801	416,209	13,584	314,372	117	7,420
Montgomery	11,659	994,920	16,680	386,263	103	10,340
Morgan	6,470	475,827	13,126	305,430	155	10,959

Number and Value of Horses, Cattle and Mules, in Ohio, for 1866.—*Con*

COUNTIES.	HORSES.		CATTLE.		MULES.	
	No.	Value.	No.	Value.	No.	Value.
Morrow	7,010	$424,518	13,190	$278,025	187	$11,947
Muskingum	10,855	816,572	23,113	533,611	284	18,827
Noble	6,658	445,327	13,144	245,736	151	9,946
Ottawa	2,922	181,957	4,674	94,182	7	525
Paulding	2,119	126.690	4,845	80,828	23	1,755
Perry	6,076	370,480	13,836	239,644	108	5,133
Pickaway	10,685	710,352	23,357	685,476	558	33,030
Pike	4,345	315,615	7,461	256.838	269	17,693
Portage	7,743	530,100	24,556	800,768	118	8,179
Preble	8,770	778,369	13,552	339,297	157	12,980
Putnam	5,587	34,090	11,639	152,969	62	3,214
Richland	9,505	728,612	17,127	376,533	148	12,635
Ross	11,055	834,553	20,493	612,824	544	38,342
Sandusky	8,350	435,199	12,790	193,419	41	2,490
Scioto	5,051	401,673	10,383	243,360	378	41,144
Seneca	10,312	596,830	16,809	239,028	84	4,712
Shelby	6,840	456,565	10,459	191,892	130	9,820
Stark	12,157	793,888	24,482	461,561	106	8,320
Summit	7,148	539,471	18,514	521,188	82	5,905
Trumbull	9,193	647,247	30,413	738,812	374	24,330
Tuscarawas	8,695	581,263	18,541	352,069	153	10,407
Union	7,884	497,336	11,733	310,233	344	20,704
Van Wert	4,561	260,422	8,843	115,473	57	3,965
Vinton	3,109	242,830	7,959	217,577	221	17,890
Warren	9,937	861,836	12,478	404,687	291	21,826
Washington	7,651	550,886	16,093	414,290	234	20,187
Wayne	11,251	730,085	23,552	430,549	238	15,732
Williams	6,259	397,749	10,863	191,948	55	2,313
Wood	6,947	356,358	12,723	191,156	67	3,365
Wyandot	6,519	408,267	10,871	226,357	450	9.478
Totals	681,284	45,608,350	1,266,394	29,619,005	20,099	1,369,611

Number and Value of Sheep and Hogs, in Ohio, for 1866.

COUNTIES.	SHEEP.		HOGS.	
	No.	Value.	No.	Value.
Adams	30,974	$75,286	25,827	$95,813
Allen	44,516	88,711	26,774	96,088
Ashland	112,689	299,798	21,884	97,150
Ashtabula	118,725	225,588	5,337	31,406
Athens	75,406	222,425	12,191	60 342
Auglaize	30,761	71,916	23,076	80,056
Belmont	165,576	618,110	21,349	110,782
Brown	25,633	73,867	26,188	135,079
Butler	15,834	52,046	29,959	233,906
Carroll	152,513	450,073	8,919	34,629
Champaign	67,961	230,581	24,620	168,601
Clarke	77,859	271,130	24,125	148,011
Clermont	33,332	61,348	31,850	159,250
Clinton	55,342	165,886	43,190	265,504
Columbiana	168,617	508,815	13,194	64,103
Coshocton	163,995	549,637	21,252	106,284
Crawford	104,893	282,369	25,961	110,606
Cuyahoga	75,366	176,307	8,567	48,209
Darke	34,971	68,675	38,537	139,565
Defiance	27,272	60,947	14,820	46,611
Delaware	137,596	450,353	20,739	108,469
Erie	59,706	185,867	8,362	50,882
Fairfield	63,559	167,057	34,240	184,229
Fayette	63,535	178,964	42,662	286,815
Franklin	5,477	187,492	42,866	253,087
Fulton	46,940	81,996	10,501	33,335
Gallia	37,459	85,368	17,558	61,928
Geauga	62,405	158,977	3,097	23,692
Greene	47,316	155,161	33,035	236,535
Guernsey	158,521	500,581	13.735	57,644
Hamilton	7,864	26,967	29,817	173,445
Hancock	83,079	172,389	33,664	121,268
Hardin	53,476	143,898	21,955	65,883
Harrison	204,634	710,924	8,326	39,316
Henry	15,859	32,826	8,698	21,627
Highland	32,422	123,608	41,019	215,201
Hocking	42,985	93,648	13,031	45,362
Holmes	92,150	213,858	18,072	59,865
Huron	156,139	403,670	15,250	75.937
Jackson	32,259	61,032	13,157	49,209
Jefferson	163,498	563,428	10,151	56,377
Knox	179,063	595,823	21,049	111,683
Lake	53,865	144,949	2,804	20,686
Lawrence	15,290	32,996	18,900	64,096
Licking	273,703	1,079,935	24,443	134,657
Logan	69,688	210,617	22,075	93,914
Lorain	162,401	348,331	10,186	50,667
Lucas	19,842	33.521	6,916	17,462
Madison	139,183	430,319	22,568	158,896
Mahoning	127,274	335,954	9,481	53,006
Marion	119,356	465,340	21,130	105,999
Medina	161,684	348,747	9,404	52,365
Meigs	35,718	98,714	12,282	55,196
Mercer	26,888	54,379	25,281	80,122
Miami	23,487	77,917	24,084	177,276
Monroe	49,815	146,285	13,972	56,817
Montgomery	17,030	55,291	32,180	197,746
Morgan	82,821	238,103	15,889	90,451

Number and Value of Sheep and Hogs, in Ohio, for 1866—Continued.

COUNTIES.	SHEEP.		HOGS.	
	No.	Value.	No.	Value.
Morrow	142,539	$431,384	16,481	$82,897
Muskingum	174,509	500,069	29,948	145,856
Noble	67,334	191,547	15,306	73,605
Ottawa	18,320	40,356	7,184	26,084
Paulding	6,623	16,679	8,059	22,486
Perry	100,274	238,179	16,299	63,311
Pickaway	46,004	129,435	53,328	249,495
Pike	23,050	41,223	19,212	73,239
Portage	137,633	397,061	7,191	43,368
Preble	19,565	65,293	30,394	243,150
Putnum	29,911	60,928	20,897	56,282
Richland	99,526	286,759	28,459	124,926
Ross	40,409	130,114	48,945	282,001
Sandusky	55,737	123.934	18,276	68,394
Scioto	14,074	34,910	17,722	68,214
Seneca	129,695	320,703	26,021	110,345
Shelby	38,784	126,980	20,910	79,345
Stark	159,601	361,288	29,413	127,828
Summit	92,665	255,599	10,980	52,365
Trumbull	133,005	340,258	7,541	41,252
Tuscarawas	159,113	447,864	22,848	82,746
Union	91,102	284,800	19,245	104,474
Van Wert	20,382	39,862	16,964	47,337
Vinton	39,154	130,382	8,553	37,560
Warren	23,102	95,086	24,603	239,656
Washington	65,617	203,326	15,574	75,703
Wayne	136,749	323,759	30,109	97,985
Williams	51,174	100,570	14,525	52,151
Wood	43,936	75,317	16,158	45,244
Wyandot	108,129	339,479	18,073	76,067
Total	6,966,028	20,081,944	1,799,417	8,866,256

Statement showing the amount of Wheat, Rye, Barley and Buckwheat, 1865.

COUNTIES.	WHEAT.		RYE.		BARLEY.		BUCKWHEAT	
	Acres sown	Bushels produced.	Acres sown.	Bushels produced.	Acres sown.	Bushels produced.	Acres sown.	Bushels produced.
Adams	20,008	108,876	140	1,067	161	2,830	72	492
Allen..........	14,450	74,900	790	8,342	744	9,953	667	9,362
Ashland	17,045	197,970	2,272	28,495	2,659	45,010	412	5,476
Ashtabula	3,394	46,988	215	6,615	171	3,004	536	5,899
Athens	13,176	104,893	153	1,450	....	....	243	2,450
Auglaize	13,695	99,012	894	9,193	3,528	57,232	701	5,834
Belmont.......	18,508	153,887	1,384	20,135	3,129	49,564	388	3,099
Brown	17,871	113,803	432	4,786	329	4,207	75	535
Butler	35,795	387,670	360	3,604	14,179	280,645	161	1,744
Carroll	10,249	64,050	3,215	29,600	1,509	20,711	819	8,655
Champaign...	29,870	349,092	884	9,662	1,404	26,003	311	4,187
Clarke	26,255	290,435	1,332	17,930	673	11,531	112	1,551
Clermont.....	21,080	174,552	938	5,852	252	4,312	350	4,243
Clinton	21,320	178,829	391	4,475	874	14,373	239	2,917
Columbiana ..	14,553	126,857	5,244	34,693	1,862	35,741	921	10,437
Coshocton	19,013	127,821	3,022	27,843	49	6,978	955	10,690
Crawford.....	14,273	172,947	851	4,455	3,114	38,758	188	2,666
Cuyahoga	3,213	32,232	1,094	12,784	271	4.855	293	3,504
Darke	34,872	340,611	1 318	14,002	7,847	122,750	499	5,464
Defiance......	16,139	186,522	118	1,563	139	3,093	349	4,580
Delaware.....	11,828	129,540	1,066	13,032	686	7,873	611	8,210
Erie...........	8,934	85,653	173	2,523	2,585	45,373	256	3,032
Fairfield......	32,861	333,691	3,403	24,107	2,217	38,079	197	2,614
Fayette	9,650	80,739	712	7,113	65	2,930	148	1,950
Franklin	22,312	229,944	1,158	12,447	2,181	24,021	759	9,711
Fulton	13,291	151,601	187	2,524	90	1,760	415	5,080
Gallia	18,791	107,088	111	837	8	65	175	1,407
Geauga.......	2,160	20,081	112	1,498	45	533	351	3,823
Greene	26,170	289,622	710	7,286	2,115	56,314	113	1,612
Guernsey	11,644	75,747	1,811	15,001	456	5,946	832	6,839
Hamilton.....	116,993	100,205	625	6.530	5,250	101,316	355	2,607
Hancock	20,013	212,020	543	7,313	978	17,520	385	4,818
Hardin	11,747	80,914	437	4,743	278	3,427	413	4,2.4
Harrison	8,504	53,694	1,621	14,364	622	10,846	514	5,088
Henry........	89,062	92,337	116	1,077	185	3,144	213	2,849
Highland.....	46,295	237,846	636	3,910	96	1,585	144	1,199
Hocking......	15,815	102,311	860	7,233	108	2,023	310	3,082
Holmes.......	15,997	191,035	2.533	22,270	1,370	20,600	682	8,970
Huron........	15,988	177,366	252	1,927	2,760	39,891	423	5,125
Jackson	12,799	53,869	101	786	1	12	157	1,215
Jefferson	11,087	102.625	1,647	18,126	3,084	49,992	167	1,483
Knox	17,307	154,206	4,204	46,522	1,851	28,422	1,054	16,528
Lake..........	3.147	35,459	82	807	757	12,168	171	2,121
Lawrence	7.557	41,639	140	836	3	15	56	466
Licking	19,055	175,284	5,266	57,216	650	8,835	838	11,289
Logan.........	21,318	234,676	478	5,374	689	10,663	404	5,118
Lorain	6,527	62 120	163	1,891	1,403	22,311	219	2,282
Lucas	6,643	54,864	243	1,767	248	5,110	475	4,328
Madison......	5,183	37,873	457	5,088	225	1,655	229	2,467
Mahoning	7,856	73,953	1,410	14,746	576	7,810	531	4,662
Marion	11,670	109,871	250	2,852	557	7,027	249	5,895
Medina.......	7,439	68,339	1,000	12,423	1,402	16,970	286	2,881
Meigs	14,764	123,649	228	1,933	121	1,739	207	2,023
Mercer	17,412	135,196	729	8,323	1,747	28,186	429	4,848
Miami	31,451	353,085	540	6,093	4,780	93,382	268	3,023
Monroe.......	13,990	106,101	1,661	15,567	289	3,987	476	4,291

Statement of Crops for 1865—Continued.

COUNTIES.	WHEAT.		RYE.		BARLEY.		BUCKWHEAT.	
	Acres sown.	Bushels produced.	Acres sown.	Bushels produced.	Acres sown.	Bushels produced.	Acres sown.	Bushels produced.
Montgomery..	34,714	438,501	933	12,614	6,095	150,605	155	1,517
Morgan..	15,152	121,394	250	2,356	118	1,785	216	1,990
Morrow	7,658	71,912	1,299	15,650	717	9,883	1,406	17,841
Muskingum ..	24,237	188,516	1,580	16,710	439	5,041	660	6,376
Noble	14,377	115,530	415	4,823	48	793	178	1,403
Ottawa.......	3,169	26,324	67	754	277	5,277	286	1,795
Paulding.....	3,576	26,935	118	657	17	445	263	3,227
Perry	16,398	141,282	923	7,974	217	3,438	410	4,107
Pickaway	25,835	228,393	832	8,875	421	4,992	186	2,389
Pike.........	11,777	49,287	241	1,641	23	588	109	879
Portage	7,556	66,109	1,300	12,832	1,402	24,097	296	3,118
Preble	34,518	339,022	361	3,738	4,835	70,188	368	2,776
Putnam......	11,639	77,657	677	7,668	145	2,246	417	5,251
Richland.....	22,985	277,691	2,993	32,650	3,234	46,148	507	6,415
Ross	30,400	189,288	1,104	10,900	243	5,012	174	1,683
Sandusky	17,803	168,849	98	3,324	664	10,225	97	3,556
Scioto........	17,361	49,696	94	1,082	226	4,302	140	920
Seneca.......	30,078	309,667	468	5,680	2,259	36,405	405	4 985
Shelby	17,864	169,373	625	6,414	1,815	33,383	384	3,920
Stark	36,151	410,771	1,749	21,789	10,209	176,795	361	4,256
Summit......	13,333	132,841	1,409	22,083	229	2,931	9,011	254,773
Trumbull	3,394	28,821	633	6,455	37	456	542	4,812
Tuscarawas ..	25,041	189,375	3,206	31,619	2,515	37,241	850	9,178
Union	13,441	111,954	593	6,622	90	1,216	434	5,696
Van Wert....	9,087	41,834	719	7,552	486	8,588	873	11,675
Vinton.......	6,633	40,389	206	1,967	2	12	236	1,704
Warren	28,350	291,621	303	2,868	6,235	147,832	445	7,254
Washington..	20,852	158,245	962	8,777	22	328	373	3,097
Wayne.......	28,785	348,612	1,953	23,474	4,421	76,209	359	4,102
Williams.....	19,453	248,971	176	2,759	223	4,348	326	4,218
Wood	9,764	71,476	216	2,228	1,234	23,197	527	6,135
Wyandot.....	9,016	87,571	121	1,437	668	16,732	161	2,353
Total....	1,648,437	13,224,097	87,371	908,603	133,040	2,333,821	42,962	644,339

Statement of Crops—Continued.

COUNTIES.	CORN.		OATS.		MEADOW.	
	Acres.	Bushels.	Acres.	Bushels.	Acres.	Tons. of Hay.
Adams	27,143	741,159	8,111	151,812	7,333	5,484
Allen	19,982	756,157	5,946	167,136	9,210	9,940
Ashland	17,662	680,079	12,091	342,730	23,059	28,343
Ashtabula	9.932	401,931	415	207,700	48,804	66,174
Athens	15,422	546,791	3,043	56,445	15,188	18,206
Auglaize	15,366	579,110	6,864	171,827	6,974	7,737
Belmont	22,314	877,731	17,164	424,654	21.517	28,882
Brown	27,707	193,222	9,871	182,369	9,229	9,406
Butler	51,273	2,181,989	9,832	234,425	8,396	10,360
Carroll	9,434	275,595	10,397	312,277	15,228	19,591
Champaign	33,342	1,335,413	8,452	255,281	13.253	17,088
Clark	29,099	1,133,209	7,097	193,302	13,031	17,009
Clermont	34,188	1,155,826	15,414	337,414	40,208	40,670
Clinton	42,602	1,660,693	6,138	136,493	12,081	15,451
Columbiana	12,977	347,975	12,470	335.016	21,521	27,242
Coshocton	25,541	932,033	9,389	209,526	19.691	25,471
Crawford	20,667	673,152	10.643	321,871	21,619	22,242
Cuyahoga	9,804	454,161	8,735	278,197	37,913	44,111
Darke	33,674	1,195,607	9,262	239,268	8.651	9,606
Defiance	9,976	326.603	3,865	126,857	7,860	10,118
Delaware	25,556	1,001,517	5,899	156,195	25.032	40,064
Erie	14,748	501,322	6,871	196,094	11,282	15,538
Fairfield	37,804	1,255,193	9,462	218,455	32,235	20,726
Fayette	50,367	2,032,407	2,821	62,278	8,608	9,966
Franklin	49,715	1,957,537	7,961	191,181	17,983	24,498
Fulton	11,474	403,534	4,487	145,562	12,472	18,067
Gallia	20,042	556,087	6,767	108,925	9,948	9,964
Geauga	5,577	210,768	5,574	155,390	36,511	46,021
Greene	35,134	1,522,211	5,784	166,191	8,201	10,969
Guernsey	15,812	541,396	9,507	191,155	22,131	23,414
Hamilton	25,856	964,865	8.508	161,742	15,072	17,968
Hancock	25,077	958,907	8,199	226,158	13,452	18,181
Hardin	23,881	702,420	4,502	116,878	10,928	15,349
Harrison	11,455	431,405	7,208	206,050	20,798	25,682
Henry	8,427	289,892	1,946	61,495	5,037	5,340
Highland	52,486	1,731,579	7,072	154,205	20,639	12,817
Hocking	13,903	431,178	4,241	77,885	8,365	9,549
Holmes	15,574	473,610	9,233	252,350	9,983	12,521
Huron	21,524	762,342	12,753	381,867	31,048	42,286
Jackson	13,483	379,384	5,073	73,787	10,074	10,143
Jefferson	11,120	418,093	10,380	260,462	16,542	20,973
Knox	28,114	892,407	10,552	255,771	22,576	31,445
Lake	4,714	195,053	3,631	90,046	15,668	19,223
Lawrence	15,500	437,206	4,451	57,312	3,829	3,317
Licking	36,426	1,398,287	10,914	277,462	35,005	53,695
Logan	25,492	842,557	5,854	150,249	17,113	27,080
Lorain	13,004	462,263	8,293	239,287	36,030	48,067
Lucas	7,591	321,674	2,814	85,355	10,593	13,911
Madison	33,731	1,374,646	3,095	74,649	15,632	20,369
Mahoning	9,130	388,111	9,656	272,482	28,575	44,616
Marion	25,097	799,964	6,159	161,331	18,013	25,552
Medina	11,625	466,302	11,854	346,963	32,400	41,008
Meigs	14,204	460,314	4,965	84.122	12,135	15,074
Mercer	18,344	592,076	6,649	186,554	7,040	6,903
Miami	34,100	1,436,663	10,575	328,595	6,273	6,906
Monroe	19,537	497,444	10,417	197,149	1,946	11,801
Montgomery	39,352	1,380,764	13,601	388,212	10,535	11,040
Morgan	13,873	462,982	3,795	79,359	13,809	16,653

Statement of Crops.—Continued.

COUNTIES.	CORN.		OATS.		MEADOW.	
	Acres.	Bushels.	Acres.	Bushels.	Acres.	Tons. of Hay.
Morrow	16,259	589,977	9,313	239,577	23,188	39,467
Muskingum ...	26,434	1,078,187	7,908	191,554	13,469	30,750
Noble	16,386	602,399	7,066	160.550	15,849	16,219
Ottawa	5,168	156,322	1,713	52,262	4,547	8,653
Paulding......	4,738	157,991	630	6,112	2,772	3,737
Perry	16.532	621,569	4.294	93,439	15,678	19,281
Pickaway	62,569	2,441,776	4,093	94,102	11,686	11,468
Pike	19,690	656,534	4,820	78,416	5,185	4,503
Portage	8,458	346,469	8,747	255,804	36,460	47,540
Preble	34,002	1,307,135	11,406	294,014	5,710	6,069
Putnam	17,257	581,741	3,118	82,879	6,833	8,348
Richland......	21,626	658,322	16,789	455,254	19,958	26,776
Ross	57,153	2,221,819	5,262	119,055	8,777	8,898
Sandusky	17,985	618,035	9,147	283,826	11,992	16,183
Scioto..........	18,686	527,768	4,882	70,157	6,358	7,242
Seneca	26,374	867,627	14.952	445,850	20,517	26,114
Shelby	19,167	647,515	9,986	272,674	8,819	8,746
Stark	19,134	696,938	15,483	479,804	17,583	27,769
Summit	4,482	71,675	11,036	554,932	18,244	25,516
Trumbull......	9,147	426,940	9,644	257,672	51,794	76,659
Tuscarawas ...	17,504	569,165	15,346	356,001	18,550	27,388
Union	24,521	1,136,001	4,247	99,486	16,787	27,578
Van Wert.....	12,850	445,813	1,866	48,876	6,266	7,809
Vinton*........	9,389	302,167	2,505	44,271	8,456	9,212
Warren	37,857	1.420,823	11,666	282,694	15,777	13,060
Washington...	18,104	610.230	7,841	143,120	18,118	21,734
Wayne........	20,996	761,167	17,277	552,258	22,283	53,337
Williams......	12,721	365,911	5,246	154,117	10,902	15,046
Wood	21,030	620,949	7,264	200,959	12,562	16,442
Wyandot	14,438	483,571	3,921	116,714	13,113	17,754
Total	1,917,613	68,375,332	684,190	18,009,332	1.442,513	1,869,127

Statement of Crops, &c.—Continued.

Counties.	Clover.				Flax.			Potatoes.	
	No. of acres.	Tons of hay.	Bushels of seed.	Acres plowed.	No. of acres.	Bushels of seed.	Pounds of fiber.	No. of acres.	Bushels.
Adams	8,884	1,328	844	482	95	481	2,451	232	11,050
Allen	7,289	7,046	3,389	335	1898	6,775	130	644	31,261
Ashland	9,517	8,934	11,240	42	1163	4,853	5,502	637	52,089
Ashtabula	517	833	103	28	63	359	7,364	1400	144,792
Athens	755	779	249	125	63	371	12,441	514	40,462
Auglaize	2,512	2,446	1,527	233	937	3,228	84	699	22,280
Belmont	3,787	4,012	1,930	179	58¼	199	4,282	664	46,935
Brown	1,657	351	65	400	39	98	2,366	386	16,252
Butler	6,490	850	257	1,601	678	3,263	2,000	1291	58,213
Carrol	4,759	17,695	2,644	188	207	1,261	11,206	338	19,289
Champaign	4,457	2,906	2,603	334	495	2,777	16,497	540	26,613
Clarke	4,374	2,873	1,237	678	495	2,932	19,219	725	22,286
Clermont	210	280	126	476	84	462	750	2114	97,958
Clinton	1,921	560	38	297	576	3,397	1,136	438	24,054
Columbiana	0,150	12,436	4,838	33	701	4,850	9,859	989	37,421
Coshocton	2,514	2,301	2,502	25	67½	308	2,505	604	42,607
Crawford	7,928	10,478	5,371	108	262½	1,276	3,662	715⅞	42,390
Cuyahoga	508	671	1	40	2	19	100	3025	268,191
Darke	6,369	4,758	1,340	1,308	3109	12,761	3,466	730	16,577
Defiance	3,555	4,227	2,411	550	103	666	370	605	45,464
Delaware	3,574	4,233	3,284	353	1842	8,578	475,960	749	57,081
Erie	3,486	4,251	2,616	142	......	......	....	1153	109,060
Fairfield	7,550	3,607	6,016	821	141	540	6,206	829	48,635
Fayette	638	334	34	25	120½	845	1,528	231½	17,712
Franklin	2,834	3,105	799	225	129	408	147	2452	156,219
Fulton	5,107	6,381	4,711	194	21½	151	799	633	53,497
Gallia	1,792	327	66	280	86	304	4,755	712	42,239
Geauga	303	435	18	9	220	1,750	35,041	833	75,646
Greene	5,616	1,612	550	798	2259	16,088	301,515	615	1,728
Guernsey	1,473	1,063	718	26	105	534	7,395	353	20,031
Hamilton	2,151	1,700	37	540	......	......	....	3800⅝	206,735
Hancock	6,145	8,217	6,037	176	925	4,415	5,101	546	34,945
Hardin	2,618	2,670	1,774	157	468	1,726	652	373	20,525
Harrison	2,774	2,338	2,001	32	78	514	4,296	289	20,558
Henry	1,661	2,198	1,331	200	66½	326	8,141	449½	31,798
Highland	2,774	895	299	132	84½	456	6,102	471½	27,967
Hocking	2,130	971	1,044	......	200	853	8,449	396	24,321
Holmes	8,755	5,520	5,867	2,883	146	923	7,800	499	31,670
Huron	7,948	9,577	5,886	483	71	461	....	1480	83,369
Jackson	461	108	51	69	64½	277	2,528	343½	25,233
Jefferson	3,539	3,889	2,451	30	38⅝	233	4,143	430½	31,478
Knox	6,019	6,245	6,025	37	675	2,837	38,591	681	50,825
Lake	1,348	1,797	351	53	5	56	490	2559	333,349
Lawrence	3,127	438	23	237	17	63	1,094	380½	23,683
Licking	2,095	2,296	1,733	80	57½	282	7,448	975½	81,577
Logan	4,636	4,283	2,570	494	1183	6,213	13,774	436	24,918
Lorain	1,050	1,339	1,265	7	20	94	80	1063	94,710
Lucas	1,811	2,357	1,075	136	50	[illegible]	192	1174	90,419
Madison	505	534	10	10	359	371	....	309½	24,700
Mahoning	5,713	7,593	4,241	48	1862	12,918	163,247	699	41,595
Marion	5,405	6.469	5,976	88	347½	1,824	168,626	543½	37,471
Medina	5,620	6,224	8,485	39	776	4,678	6,872	832	66,201
Meigs	1,008	529	92	350	66	271	4,391	865	54,879
Mercer	5,135	4,387	1,830	587	2290	5,950	630	537	97.080
Miami	8,867	4,261	1,715	2,532	2530	13,433	530,794	617	15,782

Statement of Crops, &c.—Continued.

COUNTIES.	CLOVER.				FLAX.			Po	
	No. of acres.	Tons of hay.	Bushels of seed.	Acres plowed.	No. of acres.	Bushels of seed.	Pounds of fiber.	No. of acres.	
Monroe	2,407	1,990	1,085	93	74¾	236	4,024	574¾	[illegible]
Montgomery	14,133	5,495	1,651	2,778	3088	19,008	172,370	1368	[illegible]
Morgan	1,553	1,537	517	86	41	279	4,409	430	[illegible]
Morrow	5,096	8,084	7,915	178	1789	7,853	100,780	584	[illegible]
Muskingum	3,032	3,293	1,268	108	96	450	5,167	1007	[illegible]
Noble	1,885	1,204	285	49	74½	267	7,868	354	[illegible]
Ottawa	1,194	1,632	761	15	¼	3	50	445¼	[illegible]
Paulding	396	654	96	119	94	280	4,058	209	[illegible]
Perry	1,930	1,537	1,222	59	190	920	10,508	477	[illegible]
Pickaway	2,619	946	842	650	59	297	788	534	[illegible]
Pike	545	152	116	11	82	321	2,221	360	[illegible]
Portage	4,316	5,960	2,173	94	1077	7,976	175,736	1345	[illegible]
Preble	13,817	2,585	1,283	508	4339	22,971	685	483	[illegible]
Putnam	3,657	4,231	2,518	184	307	1,003	171	562	[illegible]
Richland	14,008	11,493	9,461	415	1088	4,950	5,704	806½	[illegible]
Ross	5,057	426	142	330	39	179	3,385	623	[illegible]
Sandusky	5,732	6,409	2,184	387	26	82	186	943	[illegible]
Scioto	834	230	14	252	31¼	125	9,530	615½	[illegible]
Seneca	12,661	13,118	5,557	701	81	509	559	936	75,462
Shelby	2,429	1,940	816	314	808	3,579	7,820	390	9,248
Stark	19,085	26,341	11,665	585	509	3,371	94,125	1143	73,103
Summit	6,988	8,524	3,830	91	73	507	12,119	959¼	89,253
Trumbull	846	1,356	162	34	1413	10,118	545,439	1088	60,662
Tuscarawas	9,910	11,819	10,235	176	439	2,195	4,343	694	37,793
Union	2,154	2,449	728	165	376	1,507	8,180	501	40,034
Van Wert	3,157	3,441	1,353	84	1346	4,767	96	381	20,861
Vinton	381	142	36	26	98	303	5,509	279	14,066
Warren	3,255	935	231	950	738	4,865	875	1129	55,780
Washington	2,008	1,992	751	237	82	371	7,232	1323	90,629
Wayne	16,557	18,818	15,065	223	617	4,366	12,503	958	72,082
Williams	5,633	6,648	4,730	996	141	1,538	849	519	40,080
Wood	3,691	4,292	3,131	229	215	1,215	13,655	808	63,651
Wyandot	3,393	3,465	2,045	248	60	360	367	861	30,001
Total	388,181	361,088	217,567	34,112	47,875	245,659	3,150,488	70,289	4,659,604

Statement of Crops, &c.—Continued.

COUNTIES.	TOBACCO.		BUTTER.	CHEESE.	STONE COAL.	PIG IRON.	SORGHUM.		
	Acres Planted.	Pounds Produced.	Number of Pounds.	Number of Pounds.	Bushels Mined.	Tons Manufactured.	No. of acres	Pounds of Sugar.	Gallons of Syrup.
Adams ...	54	38,555	211,529	955	....	......	592	1	64,016
Allen	2	924	334,144	6,916	....	......	450	......	38,191
Ashland ..	⅛	400	531,796	145,693	....	......	126	278	12,146
Ashtabula	36	55,315	811,778	1,994,161	....	......	49	16	5,968
Athens ...	168	136,450	327,480	27,705	3,100,600	......	526	......	80,253
Auglaize .	8	2,936	183,658	835	....	......	483	......	31.659
Belmont ..	2022	2,177,142	581,532	10,811	988,591	......	794	1,238	106,635
Brown ...	835	724,826	204,698	1,340	....	......	660	11,012	56,479
Butler	188	159,627	351,232	1,076	....	......	771	773	49,481
Carroll ...	1¼	390	410,550	....	59,300	......	229	......	22,526
Champ'gn	6	3,839	350,040	28,021	....	......	324	......	34,590
Clarke ...	4⅜	4,300	281,973	14,050	....	......	342	......	37,719
Clermont.	312	153,600	426,090	2,400	....	......	927	......	249,900
Clinton ..	12	7,530	286,191	15,628	....	......	726	591	85,331
Colum'na.	4	993	465,552	15,520	585,535	......	591	344	22,716
Coshocton	17¼	8,766	503,079	5,755	349,794	......	506	674	48,328
Crawford .	1⅝	2,445	400,326	1,165	....	......	225	......	15,652
Cuyahoga	3	5,010	717,214	951,344	....	......	175	223	21,482
Darke	105	38,376	503,238	2,897	....	......	788	......	93,671
Defiance .	81	51,560	235,231	1,176	....	......	395	......	48,430
Delaware.	3⅞	3,245	460,500	9,639	....	......	342	......	36,632
Erie	......	....	238,725	21,901	....	......	273	107	34,204
Fairfield .	34	19,070	433,929	3,103	....	......	567	271	55,343
Fayette ..	5⅛	936	213,752	3,585	....	......	318	770	42,181
Franklin .	20	4,402	407,623	2,895	....	......	748	176	63,816
Fulton ...	4	3,950	302,077	70,825	....	......	285	......	33,811
Gallia	22¼	13,621	267,992	16,722	139,754	1,290	1140	3	115,488
Geauga ..	⅛	500	530,093	5,112,537	....	......	......	......	....
Greene ...	125	107,222	234,596	771	....	......	468	......	46,152
Guernsey.	795	674,051	361,986	4,503	123,795	......	589	7,581	58,704
Hamilton	24⅜	3,390	361,520	125	....	......	317	5,254	29,670
Hancock .	1¼	600	371,042	11,045	....	......	265	......	24,943
Hardin ...	2⅛	440	209,053	2,063	....	......	198	......	25,102
Harrison .	47	39,921	349,873	4,709	237,660	......	309	120	33,768
Henry	1⅛	450	164,335	1,050	....	......	274	1,116	27,384
Highland	13¼	8,347	286,498	5,005	....	......	980	392	114,253
Hocking ..	212	133,680	215,913	2,270	1,153,300	1,520	502	657	61,444
Holmes ...	1	2,000	467,320	8,400	141,500	......	183	......	16,290
Huron	3	1,330	678,868	59,894	....	......	790	52	37,530
Jackson ..	7⅛	4,124	205,093	9,895	404,221	15,660	640	......	73,430
Jefferson ..	1⅛	950	295,286	13,148	3,184,919	6,060	309	580	31,305
Knox	19	14,931	443,912	19,890	....	......	250	......	24,832
Lake	8⅛	9,450	196,200	241,900	....	......	44	166	5,297
Lawrence.	63⅛	29,625	127,962	630	2,693,117	20,578	766	280	76,003
Licking ..	17⅛	5,132	587,061	35,252	....	......	566	25	59,828
Logan	1	450	321,066	1,225	....	......	326	119	34,810
Lorain	12⅛	17,525	761,280	1,077,570	....	1,475	325	119	42,767
Lucas	31	10,735	159,806	4,600	....	......	216	......	23,816
Madison ..	2	2,120	143,198	56,873	....	......	199	2,385	19,440
Mahoning	¼	35	531,359	94,190	841,950	......	35	110	4,071
Marion ...	2⅜	2,232	297,571	3,704	....	......	167	......	15,799
Medina ...	8⅜	4,257	678,370	422,134	....	......	47	......	4,504
Meigs	2¼	1,050	334,456	37,936	6,554,757	......	723	888	88,729
Mercer ...	5	765	232,988	6,026	....	......	457	......	44,284
Miami	133	140,440	335,611	4,883	....	......	529	172	78,672

Statement of Crops, &c.—Continued.

COUNTIES.	TOBACCO.		BUTTER.	CHEESE.	STONE COAL.	PIG IRON.	SORGHUM.		
	Acres planted.	Pounds Produced.	Number of Pounds.	Number of Pounds.	Bushels Mined.	Tons Manufactured.	No. of acres.	Pounds of Sugar.	Gallons of Syrup.
Monroe...	3085¾	2,635,297	262,999	95,191	41,060	......	734	496	81,421
Montg'my	2433	1,619,095	444,964	1,271	....	......	784	10	82,515
Morgan ..	803½	719,134	338,693	14,105	94,989	......	609	9	2,239
Morrow ..	2½	1,431	496,704	10,634	....	......	221	233	20,949
Muskg'm.	4	3,725	547,467	8,350	1,603,548	1,000	912	5,932	100,718
Noble	2823	2,255,084	346,261	21,097	180,250	......	707	125	86,946
Ottawa ..	1¾	1,001	94,937	990	....	......	130	40	12,299
Paulding .	6½	3,525	69,283	146	....	550	87	20	7,718
Perry	240	172,705	376,555	5,421	219,871	......	490	114	56,652
Pickaway	2	595	239,161	1,947	....	......	357	8	41,097
Pike	16	5,715	103,776	220	....	......	540	850	53,411
Portage ..	2⅓	4,552	718,661	2,282,305	1,625	......	58	58	4,616
Preble ..	295	227,863	396,210	2,186	....	......	913	......	97,387
Putnam ..	5	810	192,779	2,350	....	......	300	......	25,085
Richland .	4½	2,959	601,852	3,838	....	......	189	120	18,704
Ross	15¼	4,690	226,336	13,408	....	......	740	......	83,094
Sandusky	2½	165	244,352	2,220	....	......	339	......	45,413
Scioto ...	12	5,360	124,199	435	23,988	6,700	197	......	53,457
Seneca ...	4⅛	2,430	498,695	1,882	....	......	379	......	38,158
Shelby ...	60	34,450	215,582	1,070	....	......	456	608	35,721
Stark	29	19,750	744,436	17,019	9,368,152	......	200	27	17,845
Summit ..	7½	7,450	600,236	1,040,535	311,989	......	117	......	12,970
Trumbull	1⅜	2,070	846,899	2,615,830	6,359,627	4,000	10	......	944
Tuscara's.	18	11,310	503,436	70,362	387,136	2,500	406	4,011	35,235
Union ...	4½	2,704	293,340	50,555	....	......	248	341	26,867
Van Wert	4⅜	3,810	175,118	385	....	......	260	......	19,723
Vinton ...	76	67,703	109,575	2,420	63,651	2,650	444	8	47,114
Warren ..	408	217,372	406,776	4,436	....	......	617	1,996	60,813
Wash'g'n.	735	481,846	453,422	31,337	55,650	......	1050	110	125,853
Wayne ...	15⅔	14,975	722,624	35,724	1,218,000	......	158	1,197	11,769
Williams .	2½	884	351,142	2,410	....	......	215	......	20,046
Wood	4	1,718	290,710	1,448	....	......	444	435	51,684
Wyandot	2	400	193,410	340	....	......	135	2,825	15,736
Total...	16621	13,366,538	32,554,835	16,940,213	40,488,329	63,991	37,042	56,066	4,003,754

Statement of Crops—Continued.

COUNTIES.	MAPLE SUGAR.		GRAPES AND WINE.				DOGS.
	Pounds.	Gals. Syrup.	Whole number of acres in vineyard.	Acres planted within last year.	Pounds of grapes gathered last year.	Gallons of wine pressed.	Number.
Adams	9,008	1,987	6	3	77	30	2,568
Allen	60,260	3,766	½	......	200	31	1,891
Ashland	187,535	11,07	......	1	....	25	1,862
Ashtabula	245,404	2,255	43	37	46,827	494	1,266
Athens	14,347	1,391	......	......	....	....	1,082
Auglaize	41,186	2,160	2	......	550	10	1,930
Belmont	6,205	3,738	405¼	61	48,860	4,942	2,674
Brown	2,518	859	200	2	....	3,632	1,178
Butler	10,843	12,401	59	......	1,920	299	2,849
Carroll	4,333	1,544	......	......	....	....	1,357
Champaign	113,491	8,646	......	......	72	20	2,465
Clarke	8,7 3	2,427	12	½	160	210	2,374
Clermont	250	2,800	175	35	1,700	400	2,796
Clinton	92,704	9,663	......	......	....	....	2,295
Columbiana	53,785	7,783	19	......	1,086	3	2,379
Coshocton	16,308	1,711	2⅜	¼	40	25	2,591
Crawford	57,652	4,020	......	......	1,435	10	1,503
Cuyahoga	118,207	2,972	550	197	493,303	17,366	3,131
Darke	62,326	10,496	......	......	8	8	3,683
Defiance	9,925	407	1	......	5,370	303	1,072
Delaware	126,489	13,856	5¼	1⅔	4,007	66	1,935
Erie	16,533	254	1,444	237	3,102,019	146,160	832
Fairfield	42,972	13,886	36	10	651	119	3,350
Fayette	2,403	1,091	2	¼	1,000	600	2,226
Franklin	20,551	3,421	10	174	110	233	3,030
Fulton	5,650	176	3¼	2	1,720	96	1,102
Gallia	5,203	325	14¼	......	1,273	228	2,167
Geauga	462,5 0	2,297	1	¼	23,124	215	849
Greene	72,284	9,543	6	......	1,000	80	2,074
Guernsey	2,064	318	24	13	260	30	1,698
Hamilton	1,096	2,093	778¼	160	3,260	5,684	2,482
Hancock	102,330	5,028	......	......	1,035	....	1,700
Hardin	107,33	50,217	......	......	50	....	1,398
Harrison	6,140	3,060	21	11	2,150	....	1,487
Henry	10,948	834	2⅓	......	10	378	919
Highland	20,882	2,721	4	¼	12	....	2,726
Hocking	5,376	849	⅛	......	24	....	1,888
Holmes	43,740	3,175	26	24	....	1,645	1,282
Huron	141,526	4,015	26	10⅛	7,735	784	2,009
Jackson	1,797	244	¾	⅜	25	....	1,863
Jefferson	4,482	3,951	23¼	45	3,141	6	1,374
Knox	121,562	10,034	6	2	670	100	2,238
Lake	67,658	578	56	22	31,457	330	339
Lawrence	1,218	20	......	......	....	....	2,348
Licking	100,572	12,358	......	2	255	50	3,011
Logan	389,725	7,740	24	......	1,260	138	1,863
Lorain	162,646	3,008	145	20	69,802	2,438	1,496
Lucas	948	85	11⅝	2½	14,340	291	669
Madison	4,600	186	......	......	300	....	1,146
Mahoning	140,735	16,658	......	......	....	....	1,745
Marion	38,399	2,301	4	......	4,027	419	1,591
Medina	406,741	10,265	2⅝	5⅜	5,269	116	1,465
Meigs	4,439	289	1⅜	2¼	2,576	75	2,152
Mercer	24,230	1,607	......	......	85	....	1,937

Statement of Crops—Continued.

COUNTIES.	MAPLE SUGAR.		GRAPES AND WINE.				DOGS.
	Pounds.	Gals. Syrup.	Whole number of acres in vineyard.	Acres planted within last year.	Pounds of grapes gathered last year.	Gallons of wine pressed.	Number.
Miami	73,057	16,711	......	......	....	....	2,138
Monroe	3,055	143	59⅛	4¾	400	172	2,712
Montgomery	72,341	18,761	65½	2½	470	1,174	3,571
Morgan	3,635	742	8½	2	....	....	1,634
Morrow	115,791	10,700	3	3	1,037	209	1,765
Muskingum	1,562	980	22	4	165	141	4,461
Noble	2,287	175	6	¼	1,065	92	2,085
Ottawa	3,436	502	751⅝	107¼	1,527,113	36,430	695
Paulding	11,032	362	......	......	1,633	....	842
Perry	39,147	5,246	14	5	....	600	1,977
Pickaway	10,383	3,210	17	14	270	....	3,019
Pike	10,942	905	5	1	100	....	1,758
Portage	335,704	14,852	3	¼	1,440	....	1,408
Preble	47,072	15,925	......	......	....	....	2,453
Putnam	27,846	1,528	......	......	15	19	1,603
Richland	133,923	13,794	2¾	......	680	10	2,583
Ross	21,835	6,551	24¼	4	800	203	2,909
Sandusky	14,200	1,470	6⅜	6	8,930	184	1,504
Scioto	1,899	459	68⅛	1	1,652	288	1,548
Seneca	76,976	4,128	24	5	14,549	2,222	1,979
Shelby	29,033	2,729	......	......	....	....	1,554
Stark	52,199	7,360	1	1	800	....	3,243
Summit	67,875	2,600	20½	8½	26,808	932	1,667
Trumbull	218,843	11,584	1⅓	......	160	3	1,829
Tuscarawas	19,184	2,648	61½	11¼	480	32	2,674
Union	235,730	7,861	1	......	803	19	1,554
Van Wert	16,870	771	......	......	80	9	1,413
Vinton	7,501	409	......	......	100	10	1,171
Warren	79,942	11,345	18	1	....	7	403
Washington	4,217	578	3	1¼	750	95	3,177
Wayne	83,061	6,398	1⅜	¼	503	84	2,230
Williams	23,221	1,088	1½	......	2,898	142	1,309
Wood	25,316	1,053	28	1	3,275	954	1,356
Wyandot	20,127	3,687	......	4	550	27	1,130
Total	5,675,089	455,837	5,372⅜	1,272	5,481,781	232,153	170,801

Number of Sheep killed and injured, and number of pounds of Wool shorn.

Counties.	Sheep Killed.		Sheep Injured.		Aggregate value of sheep killed and wounded.	Wool.
	Number.	Value.	Number.	Value.		Pounds shorn.
Adams	323	$1,084 00	181	$326 00	$1,410 00	48,318
Allen	310	1,097 00	148	351 00	1,448 00	102,422
Ashland	219	930 00	266	383 00	1,313 00	358,775
Ashtabula	230	980 00	124	361 00	1,341 00	358,057
Athens	304	1,036 00	76	141 00	1,177 00	189,183
Auglaize	338	910 00	136	230 00	1,140 00	47,581
Belmont	686	2,775 00	484	2,705 00	5,480 00	476,259
Brown	521	839 00	326	542 00	1,381 00	59,440
Butler	476	1,772 00	155	380 00	2,152 00	37,850
Carroll	120	395 00	58	165 00	560 00	463,024
Champaign	528	2,058 00	212	464 70	2,522 70	201,049
Clarke	661	2,885 00	548	1,115 00	4,000 00	235,573
Clermont	75	300 00	60	240 00	540 00	63,294
Clinton	575	1,931 00	2,143	674 00	2,605 00	127,910
Columbiana	2[illegible]2	855 50	192	434 50	1,290 00	521,923
Coshocton	387	1,720 00	159	478 00	2,198 00	459,728
Crawford	206	828 00	737	494 00	1,322 00	392,275
Cuyahoga	334	1,277 00	170	391 00	1,668 00	326,807
Darke	468	1,252 00	208	271 00	1,523 50	81,272
Defiance	117	382 00	38	73 00	455 00	63,130
Delaware	198	873 00	146	229 00	1,102 00	403,301
Erie	98	342 00	66	112 00	454 00	196,463
Fairfield	651	2,328 00	587	1,182 00	3 510 00	182,438
Fayette	804	3,148 00	706	1,216 00	4,364 00	181,433
Franklin	499	2,862 00	914	1,922 00	4,784 00	104,408
Fulton	223	634 00	123	162 00	796 00	152,064
Gallia	652	1,746 25	148	236 25	1,982 50	70,105
Geauga	149	559 00	157	226 00	785 00	237,563
Greene	553	2,028 00	266	906 00	2,934 00	126,351
Guernsey	374	1,480 00	292	669 00	2,149 00	448,313
Hamilton	116	557 50	17	62 00	619 50	18,846
Hancock	331	795 00	123	734 00	1,539 00	195,620
Hardin	222	1,267 00	171	308 00	1,575 00	116,948
Harrison	207	722 00	375	496 00	1,218 00	647,126
Henry	155	490 00	14	26 50	516 50	41,471
Highland	583	1,810 00	274	658 00	2,468 00	87,554
Hocking	362	1,083 00	50	66 00	1,149 00	100,484
Holmes	81	217 00	55	99 00	316 00	350,916
Huron	460	1,562 00	330	738 00	2,300 00	579,099
Jackson	463	1,080 50	99	115 50	1,196 00	59,191
Jefferson	235	1,068 00	91	242 00	1,310 00	474,257
Knox	442	1,697 00	361	822 00	2,519 00	666,880
Lake	137	476 00	49	92 00	568 00	173,224
Lawrence	218	596 00	64	81 00	677 00	8,510
Licking	641	2,649 00	725	1,491 00	4,140 00	953,006
Logan	383	1,323 00	366	395 00	1,718 00	192,001
Lorain	414	1,966 00	298	572 00	2,538 00	602,923
Lucas	201	625 00	42	65 00	690 00	80,524
Madison	505	2,341 00	425	671 00	3,012 00	481,775
Mahoning	252	1,028 00	482	694 00	1,722 00	417,835
Marion	397	1,591 00	595	1,509 00	3,100 00	397,099
Medina	315	973 00	156	298 00	1,271 00	677,876
Meigs	532	1,633 00	99	198 00	1,831 00	86,212
Mercer	389	929 00	108	159 00	1,088 00	67,451

Number of Sheep killed and injured, &c.—Continued.

COUNTIES.	SHEEP KILLED.		SHEEP INJURED.		Aggregate value of sheep killed and wounded.	WOOL.
	Number.	Value.	Number.	Value.		Pounds shorn.
Miami	342	$1,071 00	106	$162 00	$1,233 00	72,034
Monroe	441	1,353 00	95	137 00	1,490 00	111,955
Montgomery	336	1,245 00	109	274 00	1,519 00	28,607
Morgan	534	1,725 00	211	495 00	2,220 00	211,626
Morrow	185	830 00	257	1,080 00	1,910 00	418,153
Muskingum	544	2,127 00	328	646 00	2,773 00	492,837
Noble	321	1,138 00	86	295 00	1,433 00	182,977
Ottawa	118	286 00	46	29 00	315 00	51,453
Paulding	81	201 00	2	6 00	207 00	12,687
Perry	304	1,080 00	247	650 00	1,730 00	312,950
Pickaway	543	1,522 00	164	473 00	1,995 00	103,234
Pike	346	823 00	58	72 00	895 00	38,213
Portage	198	990 00	249	592 00	1,582 00	465,786
Preble	425	1,618 50	126	284 00	1,902 50	Not repor'd
Putnam	132	470 00	21	32 00	502 00	56,778
Richland	433	1,661 00	277	568 00	2,229 00	314,308
Ross	832	4,127 00	306	648 00	4,775 00	85,826
Sandusky	240	1,113 00	87	242 00	1,355 00	146.855
Scioto	259	686 00	39	64 00	750 00	20,125
Seneca	319	1,305 00	308	726 00	2,031 00	407,505
Shelby	264	768 00	88	197 00	965 00	109,290
Stark	717	2,560 00	797	1,064 00	3,624 00	428,526
Summit	267	1,201 00	214	511 00	1,712 00	273,921
Trumbull	353	1,442 00	276	709 00	2.151 00	3,468.634
Tuscarawas	274	1,273 00	193	499 00	1,772 00	452,547
Union	253	1,083 00	94	351 00	1,434 00	279,358
Van Wert	220	726 00	105	172 00	898 00	47,873
Vinton	241	768 00	53	148 50	911 50	84,312
Warren	403	1,743 50	291	969 00	2,712 50	59,940
Washington	776	2,707 00	554	732 00	3,439 00	176.472
Wayne	352	1,272 00	313	525 00	1,797 00	321.788
Williams	218	535 00	155	190 00	725 00	132,202
Wood	220	622 00	118	274 00	896 00	111,333
Wyandot	226	515 00	123	231 00	746 00	254,436
Total	31,118	112,367 75	21,681	41,729 45	154,097 20	23,927.714

APPENDIX.

THIRTEENTH REPORT

OF THE

OHIO POMOLOGICAL SOCIETY.

AD INTERIM REPORT—1865.

In rendering our report this year, your committee feel that they have very little new to offer, in consequence of the general failure of the fruit crop in nearly all portions of the State. We have few novelties to present, and have gathered but little further experience with those varieties that have previously been brought forward. Still we have been actively observing, and now proceed to give some of the results:

THE SEASON.—The characteristics of the past season have been continuous wetness. We did not experience any very great depression of the thermometer, during the winter, to injure the fruit buds. The cold, wet weather, at the period of blossoming of the orchards in some sections, was not relieved by an entire day of bright sunshine, and appeared to prevent fertilization of the germs, so that a large proportion of the blossoms on many trees fell without setting fruit. The continuation of this sort of weather appeared to favor the production of what looked like a fungous growth, upon such young fruits as made their appearance, and it seemed as though there were none that had escaped. This fungous appearance arrested the growth and development of the young fruit, so far as it extended, and the consequence has been scabby, knotty and deformed fruit, when the disease did not cause it to fall prematurely. This is but one of the protean forms of mildew which has so sadly interfered with our fruit prospects the present season.

In the pears, particularly, many of the varieties which should have been smooth and fair, the skin was thickly overspread with a rough coat of russeting, which not only changed their appearance to such an extent as almost to prevent their recognition of the variety, but it diminished their size and impaired their flavor. Other varieties were affected with a black spot of decay, which made them unsalable and worthless.

Of the apples, in most places, what few escaped the damaging effects of the early rains, and scabby mildew, became the prey of the insects, which caused them to fall off prematurely, and left none for the orchardist.

In the vineyards, the mildew made its appearance unusually early, and was observed this year for the first time to affect the young buds which were whitened by the inflorescence, and soon withered and dried up without expanding. Those that escaped the first invasion of mildew blossomed and set their fruit, but the disease soon reappeared and swept away a large share of the already diminished crop, so that when the rot came along, at a later period, there was little left for it to destroy, and most of our vineyards in this (southern) portion of the State, were an entire failure.

But this was not all—the malady attacked the foliage also, and in many varieties it was wholly destroyed, so that neither the fruit, where any remained upon the vines, nor the young wood could ripen, and in the young vines, set this year or last, the effects are disastrous in the delicate varieties which have matured no healthy wood, and, in many cases, the whole plant has died.

From these disasters we may learn two useful lessons. One is, to plant more extensively of those varieties that have withstood these hurtful influences, and, indeed, with our present experience, we cannot recommend the extensive planting of any varieties that have not proved themselves generally healthy. Another lesson is, that we must more ultimately study the peculiarities of these epiphytic plants, and endeavor to discover the conditions which favor their development, so as to know when to expect their inroads, and also the conditions or applications which are destructive of them, so that we may meet the enemy with efficient repellant means. In the present state of our knowledge, dry sulphur, sulphate of iron in solution, and air-slaked lime are believed to be the best means to combat the evil; but these remedies must be applied early and perseveringly to produce any effect, and we need extended observations of their effects.

Many persons feel so much discouraged by these adverse circumstances as to give up the cultivation of the grape entirely, but we have too much capital invested in this crop to yield it without an effort; some of us recall the fable of Pandora's box, and remember that among the various plagues, Hope was found at the bottom. So, in this case, we hopefully turn to the vineyards of Europe, that for so many years were fruitless, but which are again productive. We also recollect that other crops have, at times, been equally unsatisfactory in their results, and we see that our neighbors, with healthy varieties that withstood the mildew, are now harvesting large crops and making delicious wine, which they sell at enormous prices. Why should we not do the same?

But in other parts of the State the vineyards are most successful, as will appear from another portion of our report. They may yet have their share of the burden, for already the rot and the leaf-mildew have begun to make their appearanee among their vines.

The rain-fall in this part of the State has been unusually great the past year, amounting in one month to nearly nine inches—almost a quarter of the annual supply. The total for the year, commencing with October, 1864, is 55.13 inches, whereas the average annual rain-fall amounts to but 37.71. inches.

This excess of moisture has been attended with some curious results—the annual herbage has been unusually abundant, but feeders say that the grass and hay have not possessed their usual fattening properties. The wheat crop was seriously injured by excessive wetness, which produced a wonderful growth of straw, but not a corresponding amount of grain. The corn, especially upon uplands, has been unusually fine in its growth of stalk, blade and ears, nor have we heard of any complaint as to the quality of the grain, which was well ripened and dried in good season. The growth upon our fruit trees has been quite as great as usual, but it has been observed that the leaves were sparse. This is explained upon the theory that the buds formed last year contained the germs of all the growth and leaves that were to be produced at the commencement of this season, and that in consequence of the moisture in the soil, the abundant flow of crude sap forced an excessive elongation of the shoots produced from the buds that were formed in a season of drouth and which were furnished with a minimum quantity of leaf germs. Thus, the internodes being prolonged, the leaves would appear scattering.

In many apple trees the foliage has been unhealthy in its appearance, and many twigs have blighted and died, the leaves having turned brown. This may have been another form of mildew, similar to that often seen in the peach trees, in which the twigs are affected in a similar manner, and in them it is accompanied with the decay of the fruit—even the garden vegetables whose great merit depends upon their succulence, such as cabbage and celery, have been poorer than usual, notwithstanding the wet, and have shed their leaves in consequence of being attacked by mildew.

Let us now proceed to report what we have seen, and to begin at Cincinnati, we will speak of Messrs. Bogen's *new vineyard.*

AROUND CINCINNATI.

This is situated on the high table lands near the center of Green township, in Hamilton county. The soil is a heavy, but rather friable clay, upon the old blue limestone formation. The land had been long cultivated, and would not produce a good crop of corn, wheat or grass.

By dint of thorough cultivation and heavy dressings of manure, it has been brought into very fine condition. By thorough cultivation, we mean trenching with the spade to the depth of twenty-four inches, reversing the soil completely with the rich manure, which had been liberally spread upon the surface after the land had been thoroughly plowed and subsoiled. The culture of the vineyard is done with plow and cultivator, followed by the bidens or karst-hoe. The vines are planted six feet apart each way, and trained to stakes; and with the Norton, two arms were used, one of which was bent into a bow and secured as usual to the stake; the other tied at an inclined angle to a stake three feet from the vine stock.

While the Catawba adjoining was nearly a failure, the Norton produced a crop of fine grapes, and the new wine commands a high price. The growth of wood is excellent, and all ripened to the tips, while the foliage was still green on the first of November, except as damaged by a recent frost.

The Delawares had made a poor growth, though in their second year from planting, but this is not all; they had lost their leaves at midsummer, and the shoots, after standing, bore and grew for some time, turned black and died back almost to their origin. Here, with the best cultivation and care, Catawba, Delaware and Norton have been tested side by side, and the test confirms us in our decision in favor of healthy varieties that can withstand the injurious influences of a fickle climate, which as in the past season, has proved unusually favorable for the development of mildew.

The fruit trees on this place are also highly creditable to the diligence and judgment of their cultivator. The apples, pears and peaches, though still young, are very thrifty and well grown, showing evidence of the care bestowed upon them, and give promise of future productiveness.

PEAR ORCHARD OF M. FELS.

The old adage, about planting pears for one's heirs, has not been verified by this successful planter, for he has been delighting all who pass by along the two highways that bound the two sides of his orchard, and meet in front of his house. He has been furnishing beautiful specimens of fruit from week to week at the tables of the Horticultural Society, and taking premiums at the exhibitions, besides enjoying abundance of delicious fruit at home, and selling considerable quantities in the market at handsome rates.

The old saw has not been verified, we say, because some of us remember very well when, a few years ago, Mr. Fels commenced his improvements upon this piece of clay land, which was not considered to possess any very great promise for fruit growing. Good preparation of the soil, plenty of manure and careful culture, with good treatment of well-selected trees, give the explanation of the success that has attended this plantation.

Standard pears are the favorite fruit trees; they are none of them more than eight years old, and have already borne abundantly, as may be seen, even at this season of the year by the position of the limbs; and the numerous fruit spurs give promise of future usefulness. A single tree planted six years ago, yielded two bushels of beautiful large specimens. It did not appear that any special treatment had been adopted, in the way of root-pruning or ringing, to bring about this early productiveness, but it seems to depend upon adaptation of the soil, and particularly arise from the selection of varieties, for we noticed here and there a "slow kind," which exhibited no evidence of past or prospective fruitage.

Now that the trees have attained a pretty fair size, the ground is systematically cultivated about once in four years, by breaking up the sod, and planting hoed crops; after which, grass is again sown. After yielding a crop of hay, this is lightly pastured in the fall; of course, the trees are trimmed up, though, we think, they would look much better had they been trained as pyramids or conical trees.

Mr. Fels has about sixty varieties under cultivation, but he would recommend as a select list, those which have succeeded best with him:

Bloodgood, Rousselet Stutgard, Bartlett, Howell, Lawrence, Superfin, Soldat Laboureur, Des Nonnes, Beurre Bosc, D'Amalis, D'Aremberg, Grey Doyenne, D'Aujou.

We were sorry to observe in portions of the orchard, the evidence of blight among these pear trees; some of them had suffered severely. Mr. Fels did not attempt any explanation, but he considers some varieties more prone to this malady than others, and mentioned particularly the Stevens' Genesee, White Doyenne, Passe Colmar, Flemish Beauty, Louise Bonne and Bartlett.

Apples.—A few well-grown trees presented a very healthful appearance, and some of them had borne beautiful fruit, even in this season of scarcity. The Baldwins were very fine, smooth and highly colored; they are now almost as firm as those produced in a more northern latitude.

Cherries seem to have succeeded remarkably well in this orchard. With one or two exceptions, the trees appeared perfectly healthy, and they do not look any the worse for their exposure on the first of January, 1864, which destroyed or crippled so many young cherries in this part of the country. These trees are thrifty, and are beautifully furnished with fruit buds that promise as abundant a crop for next season as that harvested the past summer, when some of them yielded two bushels of delicious fruit, some of which was sold under the trees at the rate of twelve dollars per bushel.

The Hedge.—The orchard is admirably protected by a beautiful Osage Hedge which has for some time been turned out to the public road, and forms a perfect barrier. Mr. Fels has adopted an ingenious contrivance for the protection of his hedge from marauders, who sometimes throw a heavy rail upon the fence to bridge it, and in so doing separate the thorns so as to make very bad gaps that are not easily repaired. His method is to use a strong wire stretched fron end to end of the hedge row. We advise those wishing to try this plan, to use three wires; the first to be placed fifteen inches above the ground, when the hedge is being formed, say in the second or third year of its growth. The next wire is to be stretched at two feet from the ground, and the third, a year or two later, at three feet.

The shoots growing on either side of these wires are much strengthened and bound together by them. But in practice, he has used two wires at about three feet from the ground—one on each side of the comb or angle, at the top of the hedge; and after these have been stretched they are coupled together at intervals of a few feet or yards, by means of short wires that keep them together. By these means and by judicious trimming, Mr. Fels has succeeded in making a beautiful as well as permanent and impregnable live fence.

FRUIT GROWING AT ALTON, ILLINOIS.

A portion of the committee attended a meeting of the Alton Horticultural Society, on the third of August, and now make report of some of the very interesting results of that visit. The members of that society hold their meetings alternately at each others' houses, thus affording them an admirable opportunity for observing the several modes of culture practiced by each. The meeting in question was held at the farm of of Dr. E. S. Hull, who has long been well known as a prominent horticulturist in Southwestern Illinois.

This farm is admirably situated upon the majestic limestone bluffs that rise abruptly two hundred feet from the Mississippi river, immediately opposite the great valley of the noble Missouri, which flows from the westward, and, with its great volume of water and humid atmosphere, must exert a notable and beneficial effect upon vegetation, particularly in the winter. So much for the climatic influences produced by the situation near the confluence of two great rivers, which indeed makes the elevated lands on the eastern bank of the Mississippi almost an insular position.

Next as to the soil: We here find resting upon the carboniferous limestone that forms the elevated cliffs, not the appropriate sandstones and shales of the coal measures which occur in other localities in the neighborhood, but a more recent deposit of the loess formation, which is here a rich, friable loam of great fertility and considerable depth.

Upon this soil, and in this situation, aided by these climatic conditions, Dr. Hull has, within eight years, cleared the forest, planted his orchards and gathered his fruits in such a successful manner as to bring him the largest prices in the Chicago markets. Why and how have these results so quickly and so surely followed? Has there not been something more than the fortuitous circumstances of soil and climate that has contributed to these results? This it was the business of your committee to investigate, and we now proceed to give the result of our observations.

Before planting, the ground had a reasonably good preparation with the plow. The trees were judiciously selected and very carefully planted. Since that period, they have been systematically cultivated, and the culture is continued, so as to keep the soil in a perpetual fallow, devoted solely to the fruit crop; and, as a result, the trees are in the most perfect health, retaining their leaves until late autumn. This, with the plum and cherry especially, is of great importance, as they continue to hold their foliage for the perfection of their fruit buds, instead of prematurely casting their leaves and unseasonably bursting their buds for the production of leaves and blossoms, when stimulated by the autumnal rains, as they often do elsewhere.

Pruning is practiced with great care and judgment, so as to keep the heads of the trees open. In the peach and nectarine especially, pruning and thinning out and shortening in are systematically pursued by this industrious horticulturist. The heads are formed pretty high, so as to allow of cultivation with a horse, and to admit the curculio trap. The twigs are thinned out so as to diminish the amount of fruit, which is also thinned so that no two specimens shall ever come in contact with each other. Beside this, the branches have their ends cut off so as to prevent an excess of wood, and the buds upon the new shoots are thus well developed for the next year's crop. This orchard presents the best system of shortening in of the peach that has been met with by your committee.

The plums and cherries are similarly trimmed as to the formation of open heads at a suitable hight, but the shortening of the branches was not observed. On the former, the fruit had been thinned, but was still very abundant and very fine; it was injured to a very small extent by the curculio, but was somewhat affected by rot, owing to wet weather. Considering the age of the orchard, the cherries had yielded abundantly, having produced from one peck to three bushels per tree. We were informed that the gross sales from a single cherry tree had amounted to seventy-five dollars. This wonderful return was chiefly owing to the admirable manner in which the fruit had been packed for transportation.

The pear trees were very well laden with beautifully smooth and fair fruit. In some instances they needed thinning to prevent breaking the trees. Dr. Hull is not an admirer of dwarf pears, that is, of those dwarfed upon the quince, and he plants almost exclusively those worked upon free stocks; but he has his own way of dwarfing them and rendering them fruitful, in which he has been very successful. This consists in root pruning them in the spring of the year, when he digs a trench around these young trees in a circle of about three feet radius. This is to be repeated every few years, or as often as the trees recover their long roots to such an extent as to cause the production of vigorous annual shoots. This is not a new plan of dwarfing, but it is one we do not often see practiced. Dr. Hull has another object, however, in this practice, which he considers of as great importance as dwarfing and productiveness. Having observed that the pear blight occurred almost exclusively in those trees that were making the most luxuriant growth and were standing in rich and highly cultivated soil, it was argued that if the excessive wood growth of his trees could be checked, they might escape the devastation; and root-pruning suggested itself as the readiest means, and also of the continuous cultivation of the soil for the proper development of the fruit. So far, no blight has made its appearance among these trees, and, though this be but negative testimony and needs the concurrence of further observation and of trial in other situations, the results are highly satisfactory, and are earnestly recommended to your notice and experiment.

The Curculio Trap consists of an apparatus like an inverted umbrella, with an opening at one side to allow it when passed under the tree to embrace the stem. This is balanced upon a frame like that of a wheelbarrow, so that it may be easily moved about the orchard. When pushed against a tree the insects fall into the trap that is extended below, and the jarring of the instrument when in motion causes them to accumulate in the lowest part, which communicates with a box or bag below, from which they are taken and killed.

Packing.—One of the secrets of success in this establishment, consists in the great judgment exercised in the selection and packing of the fruit. Each specimen is taken up singly and so placed in the package, that it shall appear to the best advantage possible when opened and exposed for sale. This is not peculiar to the larger fruits, but is equally true of the smaller. The cherries are so placed in the boxes that when opened the observer sees no stems, and the fruits exhibit their fullest size, and one can hardly realize that they are only cherries, and no complaints are made by customers at the announcement of an extraordinary price.

The Vineyard.—Grapes grow remarkably well upon this soil. They are generally planted upon terraced slopes of trenched land. They are trained to stakes and trellises. The renewal system is pursued, but the summer pruning was too severely pushed, as we thought, especially where indications of mildew were observed, even at this early period of the season. Some rot had already made its appearance. The leaf-folder, ***Desmia macu-***

lalis, was very abundant, and had already seriously injured the foliage of the vines.

The apple orchards were well laden with fair and handsome fruit, but this department of the farm did not appear to attract so large a share of attention as that devoted to the fruits already named.

Before closing this account, we feel constrained to speak in terms of high commendation of the character of the papers and discussions at the meeting, of the profuse manner in which the tables were laden with contributions of specimens from the gardens and orchards, and of the very pleasant feeling manifested by all in attendance. The organization of similar associations of immediate neighbors, is earnestly recommended to our members in different parts of the State, with full confidence that the results must prove exceedingly useful to all parties concerned.

AT FORT WAYNE, INDIANA.

Your committee were in attendance at the Indiana State Fair, and were very much pleased with the evidence of advancement in horticulture and pomology, which was apparent. This is mainly owing to a few choice spirits, who manage the local association known as the Allen County Agricultural and Horticultural Society. Among these is the President of the Indiana State Horticultural Society, that may be called a younger sister of our own pomological association, in which some of us have felt a deep interest.

APPLES.—Mr. Nelson, the President, is an extensive orchardist, and has already had great experience with large numbers of varieties of different kinds of fruits. He is a very successful producer of apples, which are planted upon the rich sandy loam of the Maumee river. By long experience he has learned the very important lesson, which comes home to every one who has experimented with every procurable variety of fruits, to wit: that in every locality there are but few sorts which can be recommended for extensive planting in commercial orchards. One of his favorites, for profit, is the Ben Davis, which he has planted largely within a few years.

Mr. Rudisill is very successful in the culture of small fruits, particularly the strawberry, as he showed this fruit at the summer meeting of the society, when he rivaled the productions of Pittsburg. He is also propagating and planting the grape quite extensively, as an experiment to test the adaptability of the soil and climate of that region for the production of this crop. There are many other persons in the neighborhood who are more or less engaged in fruit-growing, and their success has been quite encouraging. Large shipments of apples are annually made from that point, and this year they are chiefly sent to New York and Boston.

The specimens of apples on exhibition at the Fair were, some of them, from other localities, but those from the immediate vicinity of Ft. Wayne were evidence of success which might well encourage others to plant extensively.

We are here situated upon an elevated plateau, this being the water shed of both the Mississippi and the lakes. The canal here passes from the Wabash to the Maumee. The Indians called this *the door of the northwest*, and occasionally passed from one river to the other in their canoes, or by a short portage.

This whole region is composed of deep deposits of the drift formation, which conceal the lime rock that has been torn up, perhaps by glacial action, and the rock lies deep below the surface. The drift is composed chiefly of clays and sands, the latter predominating near the rivers, the former upon the flats. Near the streams, there are extensive tracts of fertile bottoms, which contain a sandy, loamy soil, upon which orchards succeed well, though the fruit is somewhat subject to the superficial cloudiness caused by the growth of a minute fungus, that appears to be favored by a humid atmosphere.

AT PITTSBURG—STRAWBERRIES AND GRAPES.

Your committee were again attracted to this point, at the invitation of Mr. Knox, for us to attend his vernal and autumnal exhibitions, in June and in October, the seasons of strawberries and grapes. This very successful cultivator has inaugurated some exceedingly pleasant meetings of pomologists, by offering them the attractions of these exhibitions semi-annually. Upon these occasions one is sure to meet intelligent cultivators from several different States, all drawn together in an informal way, to see and to hear something of interest to the cause they have so much at heart. They are, therefore, commended to the attention of our fellow members and of others similarly interested in the study of fruits.

At the spring exhibition this year the strawberries were magnificent, and reminded us of what we had seen at the same place before, and reported on at our last annual meeting. The varieties then named continue to give great satisfaction, especially the *Fillmore*, *Triomphe de Gand*, *Victoria*, *British Queen*, *Golden Seeded*, *Kitley's Goliath*, *Russell*, and emphatically the so-called "700," now believed to be the same as *Jucunda*.

As a result of the careful observations of this judicious cultivator, whose enterprise induces him to spare no expense in procuring all the new varieties that appear to be possessed of any promise, he is frequently enabled to detect that they are only old sorts, introduced to the public under new names. Thus it has become apparent that the famous Buffalo, as generally distributed, is nothing more nor less than our own Cincinnati prize seedling, the *Superior*, produced for the late Mr. Longworth by his tenant, D. McAvoy. It is an excellent variety, of great richness, and large size.

The *Bartlett*, the *French*, and the old *Boston Pine*, were reported by us last year as being so much alike as to be, perhaps, identical; in this opinion another year's observation confirms us. Mr. Knox has the *Agriculturist*, and several new native and European varieties under trial, with more or less promise. The former is a remarkably vigorous plant, and will, no doubt, do as well with us as it is reported to have done in the neighborhood of New York, but we have as yet no positive testimony to offer. Indeed, the majority of the plants received from the east were so injudiciously put up, that they did not survive even when set out most carefully.

We should improve this opportunity to urge upon all nurserymen the necessity of puddling the roots of their trees and plants of all kinds when preparing them for shipment, and also the advantage of reducing the amount of their foliage. If thus treated, and then not planted too deeply in their new beds, they will be almost sure to survive.

In his large plantations, we observe that Mr. Knox sets in beds and rows that are eighteen inches apart, leaving a space of two feet between the beds. It also appeared that he allowed the runners in the new plantations to remain and form new plants, which he informed us were needed to supply the great demand. Some beds are kept closely trimmed, and upon these we shall expect, next June, to see the finest fruit.

Owing to a succession of frosts last May, when the strawberries were in blossom, the crop was materially injured, so that the result of the sales from this farm amounted to but $8,000 from grounds that had been expected to have yielded $10,000. The smaller figure, however, we think you will agree with us in thinking quite large, notwithstanding the liberal views of the customers who freely give fifty cents and one dollar per quart for the noble specimens that are marketed in the admirable condition detailed in our last report.

KNOX'S GRAPE SHOW.

Maugre the damage by frost and mildew, the grapes were on exhibition at the time appointed, October 17th, and many interested visitors were present to see them, both at the sale rooms, at the County Fair, then in progress, and upon the vines also, where a pomologist would prefer to examine them. There was, also, quite a display of wines, some of which were noticed as peculiarly attractive. Of these were the Concord, Delaware, Isabella, and particularly that made from the Anna and Delaware combined, which was especially rich and possessed of a delicious aroma.

The frosts of last spring had greatly reduced the crop in this vineyard, but some varieties had done well, particularly the Concord. The mildew had done its sad work here upon many varieties which were standing leafless at the time of our visit, while the *healthy* varieties, such as *Concord*, and its seedlings *Martha* and *Blackhawk*, *Ives*, *Hartford*, *Herbemont*, *Elsin-*

boro', *Creveling*, *Clinton*, and some others, were yet in full foliage at the late period of our visit. When beholding an exhibition of the sad effects of this insidious foe upon some varieties, and of the escape of others similarly situated in every respect, no one need be surprised at hearing the proprietor say that he would be better satisfied were all of his vines of a character to resist the mildew, or even that he would have preferred to have them all Concords.

Two seedlings of this variety are very promising, since they seem to possess all the hardiness and vigor of their parent. The *Blackhawk* is dark and quite early. The *Martha* promises to rank among the white grapes where the Concord does among the black ones, and is indeed a very promising variety, of which we shall hope to be able to give a good report next year.

MEETING AT SANDUSKY.

DISCUSSION ON SUMMER FRUITS—AUGUST 15, 1865

This meeting of the Ad Interim Committee was specially designed for the inspection of the vineyards around Sandusky and on the islands; but as it was the season of some kinds of summer fruits, which are not often seen at the meetings of the society, the citizens were invited to bring in samples for a little exhibition, and a few hours were spent in discussing their merits.

SUMMER PEARS—*The Rostiezer.*—Dr. Warder said it was a poor tree in the nursery; hence not much grown or recommended; but if well trimmed, as a standard it made quite a fair tree; and he regards it as essential to a good collection; we have only the *Tyson* at the same time. Dr. McCullough found it a good tree in orchard, bears well, ripe (in Cincinnati) 1st of August, and sells well. Mr. S. B. Marshall, of Massilon, prefers the *Tyson;* it grows well, both as dwarf and standard. Mr. Elliott prefers Tyson as dwarf, and Rostiezer as standard. Mr. McCullough said Rostiezer would sell for $1 per bushel at the most.

Osband's Summer.—Mr. McCullough said it was good and profitable for market. Mr. Powers, of Perrysburg, coincided, but said that the fruit was very perishable, and must be picked a little before ripe and house-ripened.

Roussellet Hative.—Early Roussellet and early Catherine of Pennsylvania. Dr. Warder spoke of this as the most common of early pears, and very profitable for market, because a very sure and profuse crop, but the fruit was small and lacked quality.

Madeleine.—Mr. Powers found this valuable for cooking before ripening, and the crop generally needed thinning—trees very thrifty and productive.

Beurre Giffard.—Mr. Beeler, of Indianapolis, spoke very favorably of this variety; it ripens with him 25th August. Mr. Powers said the tree was not a strong grower, and bears itself to death if not carefully trimmed.

New Ohio Pears.—Mr. Elliott said several new pears believed to be of value had been produced from seed by Christopher Wicgel, a nurseryman, and member of this Society; he was not prepared to describe them now, but it would probably be done through the horticultural journals before long.

Doyenne d' Ete.—Mr. Beeler likes it; ripe by 25th July; needs to be house-ripened; tree rather ragged and apt to overbear. Dr. Warder said the fruit was rather too small for market, but quite beautiful and good.

Ott.—Mr. Elliott said this sold as well as Seckel, (is often called *Early Seckel);* is earlier and not quite so high flavored, but very good.

Bartlett.—Mr. Miller, of Springfield, exhibited specimens covered with russet fungus and scab; he said the mischief commenced quite early, when fruit was not larger than hickory nuts; thinks it was owing to cold and wet weather; most other varieties affected in same way.

PLUMS—Specimens exhibited: Pond's Seedling, Jefferson and Coe's Golden Drop. Mr. Elliott said there was a fair crop of plums in some localities around Cleveland. Mr. Bateham said there was a full crop of common blue plums on the clayey uplands around Painesville; most of the fruit has been bought for the Buffalo market. Mr. Miller saved his plums from curculio with whitewash, but lost the crop by the rot. Mr. Elliott suggested the use of copperas water as a preventative of rot. (See last year's report.)

PEACHES—*Hale's Early.*—Mr. Barclay, of Wayne county, said his trees of this variety blossomed and set fruit finely this season, but all rotted before maturity; some other kinds affected in same way; George the Fourth and one or two others were exempt; soil rich, trees very thrifty, weather hot and showery. Mr. Oviatt had it ripen well in Summit county. Dr. Kirtland has had Hale's Early in bearing several years, and counts it the best of early peaches; tree hardy and a good grower and bearer, but fruit has a little tendency to rot in wet and warm weather; had never seen it so bad as Mr. Barclay described.

Cooledge's Favorite was spoken of as a fine market peach; tree very productive and sure bearer; fruit medium size, good quality, fine bright color and bears carriage well. Dr. Warder spoke of the importance of good *color* in market fruits; this can often be improved, as is done by Dr. Hull, of Alton, by thinning the *leaves* as well as the fruit when too thickly shaded.

Sturtevant.—Mr. Elliott asked for information about this peach. Mr. Oviatt spoke very favorably of it; great bearer; ripe same time as Crawford's Early and quite as good. Mr. Elliott found it to ripen two or three days later than Crawford. Dr. Kirtland spoke of it as quite distinct and fine.

SUMMER APPLES.—Specimens were exhibited and some discussion had on a variety called *Michigan Harvest*, not known to persons present; larger and softer and less flavored than the true Early Harvest. The *Primate* was commended as a good, tender apple, fine for cooking and for table. Mr. Lum exhibited a variety from Wyoming county, N. Y., called the *Lake Apple*. Mr. Richmond, of Sandusky, exhibited fine specimens of *Summer Queen*; also a variety called *August Pippin*, and the *Early Strawberry*. This last was generally pronounced too small to be profitable, and fruit seldom free from scabs or blotches. *Early Havest* was also pronounced unreliable; *Golden Sweet* found to be a great and sure bearer, profitable for market, though not of high quality. *Spice Sweet*, of Mr. Powers, is a better apple, a little later and not so uniformly productive. *Early Joe*, finest of all in quality, but small and very tender; only for amateurs. *High Top Sweet*, the earliest of all sweet apples, productive and good, but small size.

RASPBERRIES.—Mr. Lum, of Sandusky, exhibited fine samples of *Catawissa*. Said he cuts the canes all off in the spring; the fall crop is very large and continues till frost; the old stems are often but not always killed by the winter. Mr. Carpenter, on Kelly's Island, does not cut off the stems in spring, hence he has a summer crop and then a fall crop from the new shoots; but the second crop is not so large as when the stems are cut off in spring. Mr. Lum said he had picked ten quarts per day for several days from a patch thirty feet square. Mr. Bateham said he did not think people generally cared much about raspberries in the fall; the Catawissa was too soft for a market berry, and the flavor not first rate.

Philadelphia.—Mr. Cowdery was well pleased with this variety; found it very productive and good; though not as high flavored as the Antwerp varieties. Dr. Warder also spoke well of it; a little later than Kirtland. Mr. Cowdery said that it was more productive than Kirtland, but not quite as good.

Allen.—Mr. Cowdery found the Allen quite productive, when grown along side of the Philadelphia, the latter seemed to assist in fertilizing its blossoms. Mr. McCullough spoke of his repeated trials of the Allen, with no success. Dr. Warder had also tried the Allen, two varieties; would not bear. Mr. Bateham had tried the Allen at the Columbus Nursery, planted along side of and between several other varieties, but without success—never had a decent crop of fruit, but abundance of suckers.

Summer Planting.—Mr. Elliott said he had taken up suckers of raspberries in July, when two or three feet high, and transplanted them with complete success, having a crop of fruit the following summer. Dr. Warder said, when a boy, he had practiced the same thing.

VINEYARDS AROUND SANDUSKY.

The committee spent half a day in visiting a few of the vineyards around Sandusky, before going to the islands. The remarkable success of grape culture upon the adjacent islands has induced a very rapid and extensive planting of vineyards upon the main shore around Sandusky, and upon the Peninsula across the bay. Most of this has occurred within the past five years, so that a majority of the vineyards are quite young, and many of them have not yet come into bearing. It is also noticeable that the planters and proprietors are most of them men who had had no previous experience in the business, and had given to it very little thought or observation before engaging in it. We learned that many of the small vineyards were owned and managed by persons residing and doing business in the city, as lawyers, doctors, teachers, merchants and mechanics, who could only spend an hour or two each day in the vineyard, and had to trust to common laborers to do most of the work.

With these facts in view, it is not surprising that mistakes should be made in the choice of soils and locations, and in the want of sufficient drainage or preparation before planting, &c. As a result of these mistakes, there will be some failures, more or less complete, and becoming more manifest as the vineyards come fully into bearing.

We noticed also that no established system of culture or pruning is generally adopted, and hardly any two proprietors are agreed as to the best methods, or the theories upon which the different operations are based. This remark is, in fact, applicable to the islands, and all the lake shore, as well as the vicinity of Sandusky, for all admit they are but learners in the art of viticulture. Even those who were trained to the business in the *fatherland* soon find that they have new lessons to learn, and to modify their practice as taught by each year's experience in this country.

The time of our visit was just when those dreaded maladies the *mildew* and *rot* are most likely to show themselves in the vineyards; and the season, as is well known, had been such as to favor the spread of these diseases to an unusual extent. Hence, it was hardly to be expected that even this favored region would be exempt, and we were not surprised to find more or less mildew or rot in many of the vineyards, though it was little as compared with all the inland portions of the State, and did not very materially affect the amount of the crop of fruit, which was quite large. As is well known, the *rot* is most injurious to the *Catawba* variety, causing the fruit to drop from the stems just before beginning to ripen. The mildew affects more the *Isabella* and its kindred varieties, injuring the foliage and green fruit, often to the ruin of the crop. We found a few sad visitations of both these around Sandusky, but by no means general. In most cases, at first, we thought we could discover a reason for the appearance of rot or mildew in the bad quality of the soil or the management of the vineyard, but before we had completed our observations we learned to be very slow in forming an opinion on these points, for often the very next vineyard inspected would upset the opinions formed at the preceding one.

The varieties of grapes in the vineyards around Sandusky are Catawba, Isabella and Delaware, with a sprinkling of Concord, and a few others. The comparative value or merits of these, in the estimation of the people, can be judged from the opinions expressed in the discussions contained in this report. We were especially pleased with the fine appearance of the Delaware vineyard of Gen. Mills, of Sandusky, part of it first and part second year of bearing; the fruit and foliage free from disease, and promising an abundant vintage. Some of the vineyards of Catawba were equally healthy and fine, especially on the rolling or well drained lands; but on the wet or moist lands, especially on dark colored soils, the Catawba was more or less rotted and the other varieties mildewed. This was the case on the islands and Peninsula as well as the main shore; and we saw no material difference in any respect, where the character of the soil and the management were the same. But where too far from the lake shore, of course there is danger from untimely frosts, both in spring and fall, as well as more liability to mildew and rot.

The soil of the grape district around Sandusky, and the islands, is mostly a calcareous clayey loam, of a dark color when moist, and inclined to bake hard when dry; resting on grey limestone, in many parts only from 8 to 16 inches beneath the surface. On the main shore, and Kelley's Island the face of the land and position of the rock is generally level or slightly inclined towards the lake, and underdrainage is quite necessary for successful vineyards. On some portions of the Bass Islands, and of the Peninsula, the underlying rocks have been broken up and the surface is hilly or undulating, so that drainage is not necessary. The most elevated positions and lightest colored soils are counted best for vineyards, especially as it regards the rot and mildew.

EXCURSION TO THE ISLANDS.

A meeting of the Northern Ohio Grape Growers' Association was convened at Sandusky on the day of our visit, so that quite a party of pomologists and vignerons were brought together; and by the liberality of a few citizens a steamboat was chartered for a two days' excursion to the grape islands and Peninsula, several resident grape growers acting as pilots and escort. The weather was fine, the scenery charming, and the company very happy, (only regretting so few ladies were of the party,) so that the excursion was every way most delightful.

Passing the front of Johnson's Island, with its military camp and prisons, the neatly whitewashed buildings looking gay and cheerful in the sunlight, one hour's ride from Sandusky brought us to *Kelley's Island*, the home of the Catawba-growers. Here at the dock and in front of the Island House we found quite an array of carriages and wagons, with horses, and the owners at hand, having been apprised of our intended visit, they were prepared to take us over the island to show us the vineyards, &c. This island is about four miles long and an average of two miles wide; population about 1,000. It contains about 2,800 acres of land, about one-third of which is in vineyards, the rate of increase having been about 100 acres per year for several years past.

The first vineyard we inspected was one of seven acres, at the north east end of the island, and the poorest specimen of all, owing to the *rot*, although it seemed to have been pretty well managed and had set a fair crop of fruit; the soil and exposure also seemed favorable, and no one was able to see why the disease should be worse there than in other parts of the island. It was estimated that full one-half of the crop was destroyed; but the disease did not seem to be progressing further at that time, the weather having been for some time more favorable. Several other vineyards adjoining, were about in the same condition. We also learned that on one or two former occasions, when the rot had appeared on the island, the vineyards in this section had suffered worse than others, leading to the belief that it was partly at least owing to the effects of the winds from the north-east, to which these vineyards are particularly exposed.

Our next stop was at "big field," consisting of over 100 acres of vineyard in one body, owned and managed by 10 or 12 different persons, without division fences; and as each proprietor adopted his own method of culture, training, &c., there was a fine opportunity for observing results. The location was counted favorable, soil good, south-eastern exposure; most of the land well drained, and the mode of planting and trellising about alike, but some were summer-pruned more severely than others and there was a difference in the amount of summer tillage of the ground, &c., still our party were not able to agree upon any principle or theory as to the cause or the prevention of rot; for we found more or less of it in all about alike, though by no means uniformly over all. The undrained portions were not much more affected than some spots directly over drains, and on a high trellis or arbor the fruit was as badly affected as when trained near the ground. It was thought about one-third or one-fourth of the crop was destroyed. It was quite evident here, as elsewhere, that most of the vineyardists were too greedy for a large crop of fruit, and hence allowed the vines to overbear. This no doubt had some influence in causing mildew and rot, and still more in preventing the perfect ripening of the fruit.

Several other vineyards, belonging mostly to the Kelly family, in the central parts of the island, we found in a good state of cultivation, and promising a large crop of fruit, though most of them were more or less affected with rot. Several of the old grape-growers told us that they did not feel any special alarm from this visitation of rot, as they had been visited in a similar way before, some years ago, and the malady had entirely disappeared, as they hoped it would now, not to return until the peculiar character of the season shall again favor the advent of the disease.

At Mr. Ward's vineyard, one of the oldest, and on the opposite slope of the island we found but little rot, and here especially we noticed that the healthiest fruit was on the poorest clay soil; that on the darkest colored and richest looking land, being the most affected with disease. The *Charlotte* grape, a new variety, originated in this vineyard, and is thought to be a very promising variety, especially as a wine grape, the flavor being peculiarly rich and fragrant.

Omitting to mention the vineyards of Mr. Huntington, and a dozen others visited by more or less of our party, all of which afforded pleasure and instruction, we only add that Mr. Chas. Carpenter takes the lead of them all in the matter of testing the different varieties of grapes, and several new seedlings, as the *Mottled* and *Lydia*, originated on his grounds, are already taking high rank. The season was not sufficiently advanced to enable us to judge very correctly as to the time of ripening and comparative merits of varieties. Mr. C. has not less than 100 different sorts on trial in his grounds, and at the grape show in Sandusky he exhibited ripe specimens of them all. He also has a fine collection of other fruits, and a very large fund of information on fruits and fruit culture generally; as well as a complete wine-house and cellar, and much experience in the production and manufacture of native wines.

After our party had been very handsomely entertained at the houses of a number of the leading islanders, to which they were invited to dinner, the signal was given for "all aboard," and away to

NORTH BASS ISLAND.

This and Middle Bass are only about one quarter as large as Kelley's Island, and the business of grape growing has more recently begun on them. Each of these now is said to have 300 to 400 acres set with grapes, though not half so many are yet in bearing. The vineyards of the Messrs. Fox are all that our committee had time to visit at North Bass. We were told these were fair samples of the whole. The soil appears richer and more friable than on Kelley's Island, and the vines were exceedingly thrifty and healthy looking; the fine foliage almost entirely exempt from disease. No drainage is here required. One vineyard, of the Delaware variety, was the thriftiest we had ever seen of that variety, and left no room for complaint of its being a slender grower. Some of the party suggested that the vines had been manured with fish offal,—this island being a great fishing place in the spring. If that be so, it may serve as a useful hint to other Delaware growers. The show of fruit, both on Catawbas and Delawares, was very fine; and we learned in October, that the crops ripened well.

MIDDLE BASS.

Here we had time only to visit the vineyard of Mr. Rayburgh, one of the best on the Island. It contains about eight acres, mostly Catawba, some Delaware, Concord, Hartford Prolific, all in fine condition and very free from disease. The Delawares, especially, were exceedingly thrifty, even more so, it was thought, than those at North Bass; part of these were lying on the ground, without stakes or trellis, and yet bearing a heavy crop of fair fruit. All the rot we discovered, was in the highest part of the Catawba vineyard. No drainage is given, or seems to be required, owing to the friable nature of the soil and the broken condition of the rock beneath.

From this a short ride by steamer brings us to the beautiful harbor of Put-in-Bay, or South Bass Island. The elegant stone mansion of Jay Cooke, Esq., with its castellated tower, from which the Stars and Stripes were floating, is situated on a promontory called Gibraltar Rock, at the entrance of the Bay, and has a fine effect.

PUT-IN-BAY ISLAND.

Here we landed just at evening, our party somewhat wearied with the day's travel and excitement, but still most of them fresh for further adventure; and after getting tea and making arrangements for lodging at the hotel and one or two private houses, a goodly number set off to the "Cave." This island is superior to all the others in its advantages of soil, scenery, harbor, etc., and is, no doubt, destined to become a very attractive place of summer resort for visitors, as well as the abode of a numerous population of fruit growers and others. Improvements of all kind are going on quite rapidly, and lands are already advanced to almost fabulous prices, especially those set with grapes—some of the early planters being tempted thereby to sell out and retire with a fortune to the main land.

We found here some of the most successful and promising vineyards, and other evidences of the adaptedness of this island to fruits of various kinds. Mr. Louis Harms has about eight acres in grapes, mostly Catawba, in full bearing; has some rot this year: two acres of Delawares, very thrifty and productive, but showing a little mildew, and the vines layered too severely for a first rate crop of fruit; the young roots affording the larger profit.

A Fine Crop of Pears.—On Mr. Harms' ground was the finest show of pears we had ever seen in the West. About 100 dwarf trees, seven years old, standing in two rows, each side of a path, were loaded with large and fair specimens of Bartletts, Louise Bonnes, Dutchess, Flemish Beauties, Napoleons, etc., about a bushel on each tree, and so finely colored and free from smut, as to afford a real feast to the eyes of a pomologist, and to suggest inquiries as to the effects of the lake atmosphere on other fruits besides grapes.

The vineyards of Dr. Townsend, Judge Lockwood, and several others, in the vicinity of Mr. Harms, are, on the whole, quite successful, though showing a little rot and mildew this season.

On the south side of the island we found the vineyards of Mr. Smith, Mr. Vroman and a few others, in a fine, healthy condition—Catawbas and Delawares; also, several good apple orchards, and some peach trees well loaded with fruit. Mr. Smith has a good wine-house and cellar, and produces excellent wine, also Catawba brandy.

On the west side are the vineyards of John Stone, and some others, including several relatives of the famous John Brown, whose "soul is marching on"—on lands that might be called hilly, in some parts one hundred feet or more above the lake, and rocky in places. The vines here have only been one or two years in bearing. They look very promising, and the owners think they have the best of all locations for vineyards, and few will venture to gainsay it. It certainly ought to be such for the prices at which it is held for sale—$500 to $1,000 per acre in many parts of the island. But then, they claim that the net profits on a vineyard in bearing will fully pay for the land in two years. This island is of irregular shape, the surface more broken than that of the adjacent islands, by the disturbance of the rocks. It contains about twelve hundred acres of land, most of it very fertile, and nearly one-half set with grapes. A number of the proprietors reside in Sandusky and other places, only making this a place of summer resort for their families, having tenants to look after the vineyards. Of course, the culture in such cases is not generally as good as where the owners reside on the premises, and make grape growing their chief business, as is more generally the case on the other islands and the peninsula. In view of the inconveniences and utter isolation of these parts in the winter season, we do not wonder that people find a winter residence there somewhat undesirable. But our party are "all on board" for

THE PENINSULA.

Looking upon the map of Ohio, or, still better, upon that of Ottawa county, it will be observed that Sandusky Bay is inclosed on the north by a long peninsula, extending from Port Clinton at the mouth of the Portage river, to Marblehead, at its eastern extremity, some twelve miles, with an average width of two miles, excepting at its middle portion, where a wide promontory extends northward into the lake, giving the peninsula a triangular shape. This constitutes a township called Catawba Island. And it is really insular, being separated from the rest of the peninsula by water flowing in what appears to be the old bed of the Portage river which is supposed at one time to have had its outlet some miles further east than at present. This vale is of the ancient excavations, extending northeast and southwest, which have been referred to glacial action by geologists, and which is filled with a heavy clay diluvium, that is here considered the most valuable grape land.

The geological formation of this peninsula should be described, to enable you to understand its merits as a site for vineyards. The eastern central portion consists of an elevated region of rock, which appears to have resisted the diluvial action, and to have received from it little or no deposit of soil, hence it is a table of rock, in some places covered with scattering and stunted timber of little value, and of characteristic varieties, in others appearing as a prairie, which has so little earth as scarcely to produce grass or other herbage, and liable to burn up with the drouths of summer. This region lies chiefly from northeast to southwest, and extends from the lake shore for several miles, forming a backbone to the peninsula, gradually dipping to the southwest and disappearing under the soil deposits. On either side, the glacial action has produced deep and wide grooves, one of which is the south shore, and Sandusky Bay; the other is the vale of the ancient bed of the Portage river, known by the inhabitants as the East and West Harbors, upon either side of which is the diluvial deposit of heavy clays, and in some places, especially on the north side of the vale, portions of the land are lighter and generally lying more elevated. The harbors are low, swampy lands at each end of the vale just mentioned, which are subject to overflow by the wind-tides of the lake. These were formerly navigated by the coasting vessels; they have filled up so as to be of little value to navigation, but are a favorite resort of waterfowl. The promontory to the north of this acient river-bed is called Catawba Island, and has its band of rocky formation lying to the north and west, where it forms a fine mural escarpment upon the lake shore.

The favorite grape lands of this section lie upon the clay deposits that conceal this rock to the east and south. Most of the vineyards are upon a very stiff clay soil, which needs underdraining, but some very fine grapes are produced on the south slope, where the soil contains broken stone and gravel in considerable quantities, and where the surface is elevated into gentle swells, with a southern exposure falling toward the East Harbor. Some very fine grape vines were seen on the lower flats, very near the level of high water, where the soil was a black alluvial resting upon tenacious clay.

The inhabitants of this region manifest a great deal of interest in the cultivation of the grape, which is rapidly extending among them, and already occupies acres in the township of Catawba Island. The vines are generally healthy and vigorous; they are chiefly Catawba and Isabella. The Delaware has grown remarkably well where planted upon these clays. We found some which were layers, planted last spring (1865), that had grown ten feet, and some of them had perfected fruit also. The apples of this region were very fair, large and quite abundant; but the leading interest among the most intelligent cultivators is grape-culture, and the chief topic of conversation at the period of our visits was the grape crop and its price, and discussions as to grape soils. All agreed that the heavy clays were the best, no matter how "tight" or tenacious, if well drained; these soils were considered desirable, and were held at high figures.

The main peninsula is reached from the north by a bridge that crosses the inconsiderable tidal stream which now marks the remaining channel of this ancient river bed connecting the two "harbors." Here we find a deposit of rich clays and clay loams rising gradually toward the center of the peninsula, where the land is somewhat uneven, but generally flat, and covered with a heavy growth of timber to the west of the table-rock described above, which here dips to an unknown depth or perchance has been scooped out by glacial action, as it undoubtedly has been all along the north and south shores, and its place supplied with the usual clay diluvium deposit of this region. These deposits form an admirable soil for all purposes, and are covered with beautiful crops of every kind of cereals and grasses, with fine, healthy, productive orchards, and, where planted with the grape, with most prolific vineyards. Upon these strips of land, lying to the north and to the south of the table-rock, the burr oak, *quercus macrocarpa*, is found. On both shores these fertile deposits become, as we proceed eastward, more and more contracted between the bluff of rock and the water, and in places they are troubled by the drainage from the limestone formation, which produces a calcareous tufa that does not suit the grape.

On the south slope are many extensive vineyards, lying between the rocky region and the water; and stretching away almost continuously for some miles, they present a very beautiful appearance from the bay, or even from Sandusky, on its southern shore. Here we find the same general character of soil, modified in some places by a greater amount of black alluvial earth, which is not found to be desirable, as it produces an excessive growth of wood. Here, too, was observed the bad effect of too great a proportion of lime. There were strips across some of the vineyards where the growth was manifestly unhealthy, the foliage yellow and imperfect, the wood did not ripen, and there was no fruit. The soil in these strips was found to be completely filled with a tufaceous deposit from springs that had flowed over it in their passage from the limestone cliffs to the bay. This shows very clearly that an excessive dose of lime, even in this comminuted and carbonated state, is injurious to the grapes cultivated upon such a soil.

From the result of their examinations in this region, your committee were forced to the conclusion that this region was very favorably situated for the production of grapes, and they should not be at all surprised to see the anticipations of the inhabitants in regard to the extension of vine culture in a great degree realized in the course of a few years. Tracts of land admirably adapted for the purpose, can be purchased for a reasonable sum, whereas in other localities the grape lands are frequently held at an unreasonably high price, which is quite enough to discourage enterprising and calculating settlers.

Some vineyards have produced at the rate of six tons of grapes to the acre, but we consider that our friends generally allow vastly too much fruit to remain upon their vines, and that the quality would be superior were they to be satisfied with a smaller production, which would certainly be better for the vines.

For our convenience in visiting the different parts of the peninsula, the steamboat was very obligingly landed at several different points, and by the kindness of residents, a number of our party were taken in carriages across the country from one landing place to another, so as to see more of the land and the vineyards. All were also handsomely furnished with refreshments by the people, when needed; and the entire day, like the preceding one, was spent most delightfully by the entire party.

After embarking again for Sandusky, the following was reported for publication in the local papers:

"SANDUSKY BAY, Aug. 18, 1865.

"On board the steamer Clinton, at the conclusion of a most delightful excursion among the island and peninsular vineyards, the following resolutions were unanimously adopted by the committee of the Ohio Pomological Society, and heartily concurred in by their numerous and delighted guests:—

"*Resolved*, That since our arrival among the enterprising citizens of Erie and Ottawa counties, we have been most kindly and hospitably received by friends who have anticipated every want and provided for all our necessities That the arrangements made for the excursion among the beautiful islands and peninsula, as well as upon the main land, have been complete, enabling us to make a thorough inspection of the extensive vineyards and orchards of this famous region, where we have been delighted to witness the success of the planters, and to receive the universal hospitalities of all with whom we have come in contact.

"*Resolved*, In conclusion, that we tender our grateful thanks to all who have so handsomely contributed to our happiness, and we trust that the same spirit of enlightened enterprise which has induced our friends of Lake Erie to undertake the culture of choice grapes in this high latitude, will continue to meet with its deserved reward, and that their intelligence will enable them readily to cope with any difficulties and disappointments that may occur, and threaten to thwart their onward progress.

JOHN A. WARDER, President.

M. B. BATEHAM, Secretary.

THE OHIO STATE FAIR.

At Columbus, September 12th to 15th, 1865.

The committee Ad Interim met in the City Hall two evenings during the State Fair, and examined numerous specimens of fruit, presented to their notice by growers from various parts of the State, who also participated in the discussions; but the weather being extremely warm, prevented a large attendance.

THE SHOW OF FRUITS AT THE FAIR

was very good, considering the unfavorable season, only a few portions of the State having any to exhibit.

APPLES

were very fine and abundant from the favored northwestern corner of the State. The Toledo Horticultural Society had a very large collection on the tables, and D. C. Richmond, of Sandusky, a smaller but very good lot. And there were a few from other sections. Of

PEARS

there were a greater number of exhibiters, and from a wider diversity of locations. The finest collection, quality as well as number considered, was by Geo. W. Powers, of Perrysburg; the next by R. G. Hanford, Columbus. John Kelley, of Cleveland and A. Thomson, of Delaware, also had large collections, and there were many smaller lots, besides a splendid display (not in competition) from Ellwanger & Barry, of Rochester, N. Y.

PEACHES

were not very abundant, but more so than most people expected to see. There were very good dishes from Cleveland, Norwalk, Sandusky, Hamilton, Reynoldsburg and Osborne. It was too early for a full display of

GRAPES,

but there was a very fair show from a dozen or more exhibiters, and from nearly all parts of the State. Among them was a very large collection of native grapes from W. Z. Barney, Sandusky, and a smaller one by J. Underwood & Co., Columbus, the latter made up of varieties from the grounds of the late N. Longworth, of Cincinnati, some of which it may be worth while to have re-examined and further tested.

DISCUSSION AT COLUMBUS.

ON GRAPES.—Mr. Heaver, of Cincinnati, spoke of the sad failure of the vineyards in his section from rot, compelling even the most persevering and hopeful growers to abandon their favorite Catawba; and even the Delaware had done poorly the present year. Still the people there had too much invested in the grape and wine business to think of giving it up without further effort; and they had strong confidence that varieties of grapes were now on trial, or would yet be introduced, which would prove suited to their climate and their uses. The most popular and promising variety at this time, as a wine grape, is the *Ives' Seedling*, of which specimens were there on the table. The fruit is of a dark color, resembling the Clinton, but larger and less astringent. It makes a good red wine, with fine aroma, which is becoming very popular, especially by the German wine connoiseurs of Cincinnati, so that it brings a higher price than even the best Catawba. Mr. Heaver gave a pretty full history of the Ives grape, the same in substance as that given by Mr. Graham in the discussions at Cincinnati, in another part of this report. He said the vines had been disseminated under the names of *Ives' Madeira* and *Kittredge.*

Mr. Barney, of Sandusky, said the "Kittredge" of his region was a different grape from this—larger and more like Isabella; may be what some call the *Aiken*; did not believe it was the Isabella; vine seemed stronger and leaf more downy. Mr. Lum, of Sandusky, also spoke of the Kittredge of that region as distinct from the Ives, and also from Isabella.

Mr. Heaver inquired how the new varieties of grapes had withstood the season at the North. He said nearly all, except the Concord' and Ives, had shed their leaves prematurely, at Cincinnati, except where trained on walls or buildings.

Mr. Lum said that the same was, in some degree, true around Sandusky, and all over the State, as far as he could learn, owing to the very unfavorable season; still the loss of the foliage was not so general along the lake shore as elsewhere, and there was still a good crop of fruit in the vineyards, which was likely to ripen well. With him the foliage of Rogers' Hybrids and Iona had failed badly this season. Mr. Barney concurred, and said the Delaware had shed its foliage, where grown on black ground, especially where the vines were layered; not on dry land, and vines well up on the trellis.

Mr. Bateham spoke of his recent visit to central and western New York; very general failure of the vine foliage in these parts, especially of the more delicate varieties, and in confined situations, or on rich and moist lands. He saw the Iona and Israella at Waterloo, New York, finely in fruit, the foliage a little damaged, but not as bad as some other sorts. The Israella trained against a barn was a splendid sight. The Delaware showed considerable loss of foliage, but not sufficient to prevent the ripening of the crop. In his own section, at Painesville, and along the lake shore east of Cleveland, he did not think the failure of the leaf was sufficient to cause much injury, though in some cases it might prevent the perfect ripening of the wood, and thus cause damage to the vines and the next year's crop.

Mr. Buttles, of Columbus, said, in central Ohio, the foliage of Iona, Adirondac, Israella, and even the Delaware had failed badly, Concord and Creveling stood well. Mr. Lum and Mr. Barney said Creveling had not stood well around Sandusky. Mr. Miller, of Springfield, said nearly all the new kinds had shed their leaves with him, in the nursery, Iona and Israella stood better than most of them.

Mr. Bateham did not think the failure of any varieties, the present season, should discourage any one from planting them, especially if they had been found to succeed heretofore, as is the case with the Delaware; it was too valuable to be given up so easily. He spoke of the visit of the Committee of the Society to the Islands, and other grape lands around Sandusky, the rapid increase and large extent of vineyards in that region, and the confidence that was felt in the continued success of the business there, notwithstanding some appearance of mildew, rot and leaf-blight the present season. The business was also extending rapidly eastward from Cleveland along the lake shore beyond the borders of Ohio, especially at North East, in Pennsylvania, and various points in Chautauque county, New York, where the vines are as healthy and promising, at this time, as upon the islands near Sandusky. In his opinion, the most promising grape region in the United States was along the south shore of Lake Erie.

Mr. Heaver said he had never yet tasted good specimens of the Israella, or else it had been over-praised; he thought it a poor, pulpy fruit, not as good as Creveling nor better than Concord. Mr. Campbell, of Delaware, said many of the specimens exhibited were poor, and not fair specimens; he thought it a fruit of fair quality; valuable, especially, for its earliness, but not to be compared with Delaware for quality.

Dr. Kirtland said the Creveling, with him, ripened with Concord, a little after Hartford Prolific; quality good; bunches apt to be faulty, sometimes good form.

Mr. Buttles thought the Concord as good as Creveling, and certainly more profitable for market. He got forty cents per pound, in Columbus, for Delaware, and twenty-five cents for Concord. Mr. Peake, of Cleveland, said Captain Spalding sold his Concords for twenty-seven to thirty cents. Mr. ——— said good Concords sold in Toledo for thirty cents.

Hale's Early Peach.—Information was called for, respecting the tendency of this fruit to rot upon the tree. Mr. ———, of Lorain county, said it rotted with him this season, but not more than the Early York or other fine early varieties; he attributed the evil to the season, not the variety. Mr. Wood, of Jefferson county, said the variety was becoming quite popular in his section; fruit rotted sometimes, especially on rich and moist lands. Mr. Marshall, of Massillon, concurred: fruit fine in some localities, in others rotted; he had reports from Akron that Yellow Rareripe rotted badly there; Hale's Early ripens ten days before Serrate Early York, and is superior in both tree and fruit.

Mr. Heaver had heard complaint of the fruit rotting in the southern part of the State. This Society had done much to give this fruit notoriety, and he hoped it would not disappoint the expectations of growers.

Dr. Kirtland said he was among the first to make Hale's peach known to the public. It is the finest early peach grown. It may be liable to rot in certain seasons and localities, but in most parts of the country its reputation is well established, as the earliest and most profitable of peaches.

THE PEACH GRUB.—It was asked how the injury by the grub can be best prevented. Mr. Bateham replied: mix coal tar and ashes to the consistence of thick cream and apply it to the base of the trees, the last of May, and it will prevent the fly from depositing the eggs. If the trees are fresh set or quite young, so that there is danger that the tar may injure the bark, take strong paper (hardware paper) and cut it into strips or squares four to six inches wide, and long enough to reach aroud the trees and lap an inch over, then remove a little of the surface earth and wrap the paper collar around the base of the tree, fastening it at the top with a tack or piece of twine, and at the bottom by returning the loose earth. This will last through the season, and if well applied exclude the fly. He has used tarred paper, made for roofing, but it is more expensive, and, he thinks, not much better.

SULPHATE OF IRON.—Mr. Buttles asked whether any persons present had experimented with copperas-water for fruit trees, as recommended in the last year's report of the Society. It was suggested that rot in fruits was the effect of fungus, like the smut and scab, and that a solution of copperas-wash makes the fruit fairer. He experimented a little; used a piece of copperas as big as his thumb in two gallons of water, and it was too strong, it caused the leaves to turn black and fall off. (No other experiments of the kind were reported.)

Some discussion was had on strawberries and other small fruits, but nothing new being elicited, the Secretary does not deem a report worth publishing.

DELEGATES.—On motion, the President and Vice President of the Society were appointed delegates to the meeting of the Indiana Horticultural Society, at Fort Wayne, and the President and Secretary to the exhibition of the Northern Ohio Grape Growers' Association, at Sandusky, and also to Knox's Grape and Wine Show, at Pittsburg.

THE GRAPE SHOW AT SANDUSKY.

This was the annual exhibition of the Northern Ohio (now Lake Shore) Grape Growers' Association. It was held in connection with the fair of the Erie County Agricultural Society, on October 11 to 13, 1865.

The grape crop in that region had generally ripened well, and the fruit was very abundant and good. The accomodations for the show were ample and convenient, and the display of grapes was probably the best ever seen in this country. The month of September having been very warm, some of the early varieties were a little past ripe, but this was more than made up by the superior quality of the leading sorts. Catawbas, especially, were in the greatest profusion and excellence; and Isabellas, Concords, Delawares, &c., fine and abundant. They were shown in dishes and baskets, and boxes for transportation, in pyramids on the tables, and in festoons overhead. The competition for premiums was quite spirited and extended from Toledo all along the lake shore to Fredonia in New York. And from further east were the originators of the *Iona* and *Israella* and the *Adirondac*, with specimens of these new varieties for the exhibition. Mr. Carpenter, of Kelley's Island, and Mr. W. Z. Barney, of Sandusky, took the premiums for the greatest number of varieties of hardy grapes. The following is extracted from the report of the committee on grapes:

"Much credit is due to Mr. Carpenter and Mr. Barney, for their zeal in testing so many varieties of native grapes, and exhibiting them to the public. Among the Ohio Seedlings exhibited by Mr. Carpenter, are several of his own raising, that have received high commendation, both for the table and for wine. The committee were especially pleased with a collection of a dozen or more of different seedlings exhibited for the first time by Mr. J. M. Hopkins, of Brownhelm. Several of these give promise of high excellence, and will, no doubt, be found worthy of description and name; but the one which the committee deemed best of all, was a white or light colored grape, said to be from seed of the Isabella, and as hardy as the parent, with a most delicious aromatic flavor, resembling that of the Frontignac varieties more than any other native variety known to the committee. It was awarded the premium of the best new seedling, and named "Lorain" by the committee, with the approval of the originator.

In awarding the premiums for "the best bunches" of Catawba and other grapes, the committee would remark, by way of explanation, that while ripeness and quality of fruit were overlooked, the *size and form of bunch* were considered chief requisites, hence it might be that other bunches were superior in ripeness and flavor to those which obtained the premiums, but inferior in size and weight. The Committee are of the opinion, from what they observed, that most of the vines around Sandusky were allowed to bear too heavy crops for the highest perfection of the berry and bunch. Those who intend to compete for premiums at exhibitions, at least, should thin the fruit when young.

The Committee would further suggest that in future, when premiums are offered for the best plates or bunches of common varieties of grapes, it should be required that they be grown in *open ground*, as in vineyard or garden, and not trained against a building, wall or fence. Without such rule, the amateur, with only a vine or two, trained on his house or barn, has the advantage over more deserving cultivators. This, however, is not material where the object is mainly to bring out for exhibition good specimens of new or uncommon varieties."

The Wine Show was not so attractive to the public, but a very able committee, with George Graham, of Cincinnati, at its head, and our worthy President next, reported very favorably on it. The competition was from J. E. Mottier, of Cincinnati, and Messrs. Carpenter, Kelley and others of the Island. At the close of their report, the committee add:

"In addition to the above report on the quality of the wines presented to the committee, we deem it our duty also to congratulate the Grape Growers of the islands and shores of Lake Erie, for their great success in the cultivation of the grape, and the energy and devotion to this delightful occupation, which has called together so large a number of intelligent and practical Wine Growers, giving the visitors of the exhibition an opportunity of inspecting and examining the most extensive and magnificent exhibition of fine native grapes ever made in the United States. This collection is especially important this season, as in almost every other locality of Ohio and Kentucky there has been almost a total failure of the grape crop."

A correspondent of the *Pittsburg Commercial*, gave the following notice of the Sandusky Grape Show, &c.:

"The Northern Ohio Grape Growers' Society, has just closed a meeting at this place, which was much the largest and most important meeting of the kind ever held in this country. Nearly every portion of the State was well represented, and there were many visitors in attendance from New York, Connecticut, Pennsylvania, Missouri, Kentucky, Indiana and Illinois. The show of grapes was truly magnificent, including almost every variety grown; many new seedlings, some of which are of great promise. The principal variety grown in this region is the Catawba. It has done well. Whether it will continue to do so, or be subject to mildew and rot as at Cincinnati, remains to be seen Already there are some symtoms of disease, both on the vines and fruit, creating a little uneasiness among growers. As a precaution, other varieties are being largely planted. The quantity of grapes shipped from this locality to almost every part of the country is incredible. We notice that the practice is to ship the best fruit, and use the rest for wine. This course is not calculated to develop fully the finest wine properties of the grape. Parties are now here from Cincinnati, St. Louis and other places, purchasing largely for wine purposes. The ruling price at present is 13 cents per pound."

DISCUSSION ON GRAPE SOILS, ETC.

During the fair at Sandusky two evenings were devoted to discussion of topics of interest to grape-growers, such as grape soils, varieties of grapes, &c., a pretty full report of which, compiled by our Secretary, may be found in the published report of the Grape Growers' Association, hence is not copied here. We have reason to congratulate that Association on the success of their first exhibition, and their prospects of greater things in the future. We greet them as fellow-laborers with us in promoting the interests of Pomology and Horticulture in our land.

The Society was reorganized at its annual meeting in February, under the name of *Lake Shore Grape Growers' Association*, with the following officers for 1866: *President*, Dr. J. P. DAKE, Salem, Ohio; *Vice President*, M. F. COWDERY, Sandusky; *Secretary*, M. B. BATEHAM, Painesville; *Treasurer*, ALTON POPE, Cleveland.

The annual grape and wine show is to be held in Cleveland in October next, and a meeting of the Association to inspect vineyards at Sandusky and the islands in August.

ANNUAL MEETING OF THE SOCIETY,

Held at Cincinnati, December 6th, 7th and 8th, 1866.

This meeting was held pursuant to notice, in the rooms of the Cincinnati Horticultural Society, commencing on Wednesday, December 6, at 11 o'clock A. M. After an hour spent in arranging fruits on the tables, and in friendly greetings, the President, Dr. J. A. Warder, called the Society to order, and appointed the following committees:

On the Introduction of Members and Delegates.—George Graham, Wm. Heaver and Geo. W. Campbell.

On Fruits for Exhibition and Display.—Jesse Storrs, Giles Boalt and Edgar Westervelt.

On Rare and New Fruits, for Report and Discussion.—Geo. M. Beeler, N. L. Wood and S. B. Marshall.

On Business and Resolutions.—Geo. W. Campbell, J. R. Miller, George Graham and Israel Hall.

On Nomination of Officers.—J. A. Scott, J. R. Miller and J. Storrs.

Adjourned till two o'clock P. M., when the Hon. George Hoadley, on behalf of the Cincinnati Horticultural Society, delivered the following:

ADDRESS OF WELCOME.

Mr. President and Gentlemen of the Ohio Pomological Society:

I have been directed by the Cincinnati Horticultural Society to represent them on this occasion, and to express to you their gratification at your presence here to-day. Fellow-laborers in the same great cause, you have been, and ever will be, our most welcome guests. But you meet us now, after a season of especial discouragement to us, and you are, therefore, more than doubly welcome, for you bring with you that, without which man's labors are hopeless, and soon fruitless—the encouragement of successful example. We welcome, therefore, our friends from Kelley's Island and the Lake shore, because where we have failed, they have prospered; where mildew and rot have swept our vines, theirs have been spared to delight their eyes and our palates with the luscious harvest.

And to our friends from the Muskingum and Tuscarawas valleys, and other portions of the State, whose year has been, like ours of Hamilton county, a year of failure, we extend an equally warm and earnest welcome; for misery loves company. Friends, in this respect I have this to add, that we are ready for competition only in the record of failure; that none of you can show a fairer promise worse blighted; more plums, cherries, peaches, and even apples, stung by curculio; more and better grapes mildewed for a beginning, and rotted for a finish, than we about Cincinnati have this year had. Certain it is that you must be content with our company, and not sick of our love; for we can neither "stay you with flagons, nor comfort you with apples." We buy our apples at fruit stands. They are brought from Michigan, and the wine in our flagons is made of barley.

But, gentlemen, encouraged by the memories of past years, and by the example of the success of other portions of Ohio, and the West, our Society is, in this its maturity, full of as vigorous effort and steadfast adherence as ever in its youth. We have in it, our limited sphere—as you in your larger sphere—a great work, from which we do not propose to allow any discouragement to withdraw our hands. For, though this year or that be not crowned with abundant harvests, the cause we have at heart moves steadily onward. The increase and improvement of fruit up to a golden ideal, in a not far distant future: this it is for which we labor. And how full of promise and encouragement, in this regard, is the progress of the immediate past! Why, sir, within my own memory, there was no good fruit in northern Ohio. I recollect the formation of the Cleveland Horticultural Society—its vigorous youth—its repeated trances, some of them lasting so long that I am almost afraid to ask "Does it still live?" I recollect the first cherries, the first good apples, the first peaches fit for anything but hogs, brought to the market of that city. But a dozen years ago, not a grape was exported from Kelley's Island.

In the preface to Robert Manning's "Book of Fruits," issued in 1838, he says that no possessor of any or all the kinds described in that manual "would willingly relinquish their culture for the purpose of regrafting his trees with *any* other varieties." Among these are enumerated 81 kinds of pears, of which 23 had already, in 1858, found their way to the American Pomological Society's rejected list, besides several others, such as Beurre Von Marum and the old Frederick of Wurtemberg, which equally deserve condemnation. Of the 20 varieties of pears, for which Messrs. Hovey & Co. obtained the first premium at the Massachusetts Horticultural Society's exhibition this fall, *eleven* are unnamed in this manual, and were unknown to Robert Manning, then at the head of American Pomologists. And among these are fruits now so widely cultivated, as Swan's Orange, Sheldon, Beurre d'Anjou, Beurre Hardy, Howell, and Meriam Hardy.

In my boyhood I was present at the planting of a pear orchard by an amateur of very extensive knowledge and large experience. It was his design to admit no inferior, and to include every superior variety. That orchard, planted in northern Ohio, stands yet, almost surrounded by the brick and mortar growth of a flourishing city, and in it are Cumberland, and Wilkinson, and Howard, and Knight's Monarch, and Rousselet de Rheims, and Rushmore's Bon Chretien, and Amire Joannet, and Petit Muscat—none of which are now considered worthy of cultivation.

And the list of fruits equally worthy of amateur culture with any there planted, but not then known, may be numbered—I say it with diffidence, but with confidence—by fifties, perhaps by hundreds. And not merely in number and value of varieties, but in quality of fruit also, has the same rapid progress occurred. Massachusetts, as usual, bears the palm in this, with her Duchesse d'Angoulemes, weighing 24 ounces; her Beurre Diels, weighing 23 ounces; her 12 Bartletts, weighing ten pounds, which have been shown at the exhibition of this autumn.

I have spoken of pears, but if we turn to any other fruits, the same progress is manifest. Take that in which, more than any other, all are now interested—the grape. Where, five and twenty years ago, were the Delaware, the Concord, the Iona, the Creveling, the Diana? Or, to go under glass, this very year of grace, 1865, has witnessed the greatest triumph of culture in the production—by Mr. Meredith, of Garston, the most successful grape grower of England—of a single bunch of Black Hamburg, with six shoulders, weighing 9 pounds 8 ounces.

The wonderful results of the past quarter of a century are mainly owing to the labors of such Societies as this—themselves both the result and the cause of progress. They have been centres to which knowledge has tended, and from which it has radiated. They have stimulated study, encouraged competition, and rewarded success. We bear in honored remembrance, sir, the names of those who, in our own Society, have aided in this great work; and, not to speak of the living, the memory of Ernst, and of Longworth, and many more, into whose labors we have now entered, is still fresh among us.

There are some special directions in which, Mr. President and gentlemen, we can now work to great advantage, in our associated capacity, with large hopes of future reward. Among these, I would name, first, special encouragement of the long-continued, persevering and extensive culture of seedlings. Precisely how such encouragement should be given, I do not presume to suggest; but certain it is, that the method of production I refer to, deserves well at our hands. If with so little done on purpose, a kind Providence has favored us with so many valuable fruits, sprung, as it were, out of some chance seed cast thoughtlessly to the ground, or dropped by a bird, or fallen from the pomace of a cider press, have we not abundant reason to labor so as, at least, to prove that the art and cunning skill of the husbandman have value, and shall not be distanced by the mere lavishness and profusion of nature's spendthrift bounty? Why, with the Seckel, the Sheldon, the Northern Spy, the Newtown Pippin, the Spitzenbergs, falling, as it were, from the clouds, it is time for us to wake up and vindicate our manhood, our rights to the dominion of the earth. With the European examples of Van Mons, and Esperen, and Bivort, before us, with Clapp's Favorite, and the fine pears of Mr. Dana, and Dr. Kirtland's cherries, and Dr. Grant's and Rogers' grapes, and Mr. Campbell's experiments in mind, let us no longer rely on bees for our hybridizing, and birds for our planting, but go to work, each for himself and all for the common good, at the systematic and extensive production of seedlings—of seedlings not for stock, but for fruit. I rejoice, sir, that this pursuit has a pecuniary reward. It is better that we buy Augusta roses and Northern Muscadine grapes, and pay for what has no value, than that we should not buy at all. The very fact that there is a demand for humbugs is encouraging, for it proves that there is also a demand for what is better. I have paid, and that ungrudgingly, for the Adirondac, and the Iona, and the Israella, for the Great Agriculturist, for the Edwards, and Clapp's Favorite, and it is all right. If any one of these is a good thing, the money is earned; if none of them, the buyer has, at least, done his part to stimulate progress, to create a demand, and thus to encourage with hope the patient laborers who are to produce the success of the future—success certain, if carefully prepared for and patiently waited on. Instead of grumbling, let us go and do likewise, only better.

I know well the discouragements that attend the production of seedlings. I was one of a family of children who were paid to save apple seeds, and though, by this means, the seeds of the very best fruit, you may be certain, were secured, not one apple worthy of culture was the result. An extended and continued effort to produce new pears, in the same family, based on the same system—that of selecting the seed of the best fruit, thus beginning where Van Mons left off—resulted in a single variety of value.

The principles of classification heretofore adopted in our societies, have had reference to the value of a variety for market. We find this, and other associations of the kind, recommending lists of six, of twelve, of twenty kinds, and no more. Intelligent cultivators have asserted that not more than a dozen first class varieties of any one fruit exist. How often have our manuals been denounced because of the long lists of what are assumed to be worthless sorts. How frequent the observation that dwarf pears are a failure, and that but half a dozen kinds succeed on this stock?

Is this true, Mr. President? Or if true at all, has it any application to amateur culture? I venture to deny it all, and to assert that, of the pear, the varieties entirely worthy of cultivation by the amateur, for his own table and that of his friends, are now numbered by hundreds; that it is only by this extensive culture that he can always have fruit: have it of various and differing merit, so as to suit different tastes; that almost any variety of pear will do well on quince stock, under careful amateur treatment, and not grown in the rough, with simple reference to marketing. With one strawberry or two, you may have a season of two weeks—with a dozen kinds, and they are just as easily attended—the enjoyment I have prolonged to five weeks, to meet the raspberry; and, by the same system, the raspberry meets the blackberry, and that delicious fruit will soon carry us to the earliest grapes. In the interest of this thought, I venture to suggest that if there be a literary work now worthy of attention in this country, it is the re-editing of Downing's "Fruits and Fruit Trees of America," so as to include the new varieties. At the meeting of the Fruit Growers' Association of Western New York, in January, 1864, Charles Downing named six pears as the most promising of the new kinds, and Mr. Ellwanger added two others. Of these eight, four, viz: Doyenne du Comice, Edwards, Belle Williams and Lycurgus, are not described in the book I refer to. Mr. Elliott has re-edited and revised his valuable work, it is true; but I allude to Downing because it is intended for the whole country, is of standard authority, and the fact I cite is another instance of the marvelous and encouraging progress of our art.

There is still another topic to which a mere allusion must suffice, and on which, were there time, I would gladly dilate. I refer to the influence of pomology on landscape gardening. No orchard need be a succession of stiff, straight rows of ugly, tall trunks, and no orchard ought to be, for the spot under a tree should never be profaned by a plow. Every fruit tree, yes, even the Winter Nelis pear, can be made to assume a form of beauty. But to this end it is necessary to begin, as with a child, at the beginning. And in this part of Ohio, in which the beech constitutes so large a share of the forest growth, and robs us, with its dull russet, of half the glory of autumn, it is not out of place to call attention to the various beauty of the autumnal foliage of many of the pears.

But I have wandered from my text, and return to it and my seat, by again repeating, Mr. President and gentlemen, that among our causes for thanksgiving to-morrow, not the least is that you are with us: to join with us in thanking God for civil war ended in victory—for labor at last free—for our country redeemed and without a slave.

The President then delivered his Annual Address:

ANNUAL ADDRESS OF THE PRESIDENT OF THE OHIO POMOLOGICAL SOCIETY.

CINCINNATI, December 6, 1865.

In the name of the Ohio Pomological Society, and on their behalf, allow me to tender our hearty acknowledgments for the cordial reception you have extended to us. Coming, as we do, from various points in our extended domain, and representing, as we do, the horticultural interests of the whole State, it is peculiarly gratifying to find ourselves so warmly welcomed by the members of the oldest Horticultural Society in the western country.

Like yourselves, but not quite so long a time, have we too been engaged in earnest endeavors to ameliorate the condition of our fellow citizens by the extension of a taste for the beautiful, softening, refining, and ennobling fine-art, horticulture We may congratulate one another upon the progress we have been able to see as the result of our joint efforts.

Again, my dear sir, on behalf of my fellow-members, I tender you and the Cincinnati Horticulturists the thanks of the Ohio Pomological Society, whom you have so kindly invited to your hall.

ANNUAL ADDRESS.

FELLOW-MEMBERS:—In her annual course, the earth has again revolved about in her orbit since we last met together, and, as she has brought us around to nearly the same point in space which was occupied at our last annual convocation, so have we severally come together again, after our manifold outgoings and incomings, to and from the orchard, and vineyard, and garden. At the sound of the call that has been sent out to us, we have again assembled to interchange friendly greetings; to tell one another of our discoveries; to compare notes as to our successes and failures; and, as much as in us lies, to give to one another something that each may carry away with him, in confidence that it will add to his usefulness, and inure, in some degree, to his future success.

That we have again re-assembled at our annual love-feast, that we have been spared thus to meet in our peaceful pursuits, is a cause for thankfulness. To be able thus to convene from all parts of the State, without let or hindrance, and thus be permitted to enjoy the shade of our own vine and fig-tree, with none daring to make us afraid, is cause of gratulation. Were we not thankful for the manifold blessings that are so abundantly vouchsafed to us, we should deserve to be, of all men, most miserable.

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It is a matter of regret that we have been obliged to hold this meeting at the time our good President Johnson has appointed for a day of thanksgiving throughout the United States—this being a double holiday, both State and National, and an occasion when, indeed, we have the greatest cause for thanksgiving, it should be kept with thankful hearts. When the proclamation was received, our appointment had been made, and was too generally published for us to change it. But surely we can here be as thankful as in our several homes. The God of Peace is everywhere, and our aspirations of praise and gratitude will reach Him as well from the city as from the lonely hill-side or the extensive plain.

In my last annual address it was necessary to allude to the condition of the country, as being in a state of dire warfare. While we were then conducting our peaceful assembly, our friends and brothers were battling for the right, and endeavoring to subdue a terrible rebellion. The cause of *liberty* and *our country*, and all we justly hold so dear, was then threatened, and the firmest among us shuddered for the possible result of disaster to our flag, and the consequent ruin to our once happy government and country. We then ventured to assure ourselves that the right would give us the might to put down the rebellion, and to re-establish, more firmly than ever, the glorious principles of American Liberty, and to insure a happy future of *freedom* to all who seek the protection of our banners.

We have now the unspeakable privilege of congratulating one another upon the fact that we are no longer in a state of war; we may boldly and joyously sing our hosannas of peace! Oh, that we may never again know anything else for our country. We, who have so important a *role* to perform among the nations; we, to whom the lovers of freedom all over the world so naturally turn for an example of self-government, we have something better in store for us than military glory! We have a continent yet to subdue and to render fruitful; we shall have millions of human beings to educate for usefulness, and to imbue with correct and noble views of liberty and self-government. Let us, therefore, continue to encourage peace. Among the nations, as among individual men, let us so conduct our affairs as to give no excuse for insult, and we may continue to prosper and to progress in the glorious career that is open before us as a nation, which is, and is to be, foremost among the nations of the earth.

One of the most encouraging signs of the times is the fact, that whereas the people of this country not only sprang, at the call of duty, to the support of the flag which symbolizes American freedom, but that they very soon made most excellent soldiers; and nevertheless, after years of service in the camps and in the field, they do not come back to us the demoralized beings which, history informs us, always result from a disbanded army. On the contrary, with the close of the war, and the consequent mustering out of the troops, "the pomp and circumstance" have passed away; the military dress has already almost wholly disappeared from our streets, and everywhere, on the road, in the field, and in the workshop, we may find our country's noble and fearless defenders, as regularly installed in their old places of labor and production as though they had never been absent upon the tented field, nor joined in the hurried march, nor rushed in the dread assault and storm of the enemy's strongholds.

FAILURE OF THE FRUIT CROP.

In taking a retrospect of the past year, as it appears upon the balance sheet of our orchards, and vineyards, and fruit gardens, some of us find very little to boast about. We have lost our fruit crops, and have nothing to show on the credit side of our accounts to offset the certain presence of the necessarily heavy items which are sure to be found upon the debtor page. Yet we must not allow ourselves to be discouraged by the occasional recurrence of such seasons, but should endeavor to draw some useful lessons from these failures. In the present instance, the loss of our crops is fairly attributable to the peculiarity of the season. Climatic agencies are not within our control, it is true, but that may be owing to our ignorance of meteorology. The very general attention which is at present paid to this subject by regular observers, in all parts of the country, will eventually bring system and order out of the apparent chaos and confusion which at present invests it. Even now the wild guesses as to the weather, and the superstitious signs of a former age, are fast giving place to more enlightened views, based upon established facts, with regard to the "uncertain elements."

While we cannot expect to "rule the storm," we may yet learn to ward off its fury; and, as we have sheltered ourselves from the pitiless peltings of the storm, and have discovered a conductor for the bolts of heaven, which protects us from their terrific agency, so we may yet learn to guard our favorite crops from the cold of winter, (as we already do in many cases) from the untimely frosts of spring, from excessive drouth and moisture, and especially from the terribly destructive though insidious attacks o epiphytic or parasitic plants, such as the varied forms of mildew present. These blights have prevailed with disastrous effects during the past season, when the climatic influences appeared particularly to favor their destructively abundant development upon our favorite crops.

Blights and mildews have been unusually prevalent, and to their agency we may charge a large share of our losses. It behooves us, therefore, to make their investigation a specialty. This may be the work of years, requiring the most patient and persevering study and observation. We shall need the aid of the microscope in the pursuit, and we may be compelled to employ an expert in microscopy to assist us; but, whenever we have an enemy to contend against, the first requisite is a knowledge of his character, his forces, and his position.

In this case we may already answer, that the character of our adversary is that of a most pertinacious and insidious foe, who will steal upon his victims without warning, until, too late for them to offer any resistance, he has enveloped them with his interminable meshes, and poisoned all their sources of supply with his noxious exhalations and secretions. Of his forces, we may say that they exceed the mightiest army ever marshaled in the field, since they are more numerous than the sands of the sea-shore; and we may add, that they are so viable in their infinitesimal tenuity, as seeds or spores, that they are omnipresent with the air, which wafts them to all portions of the earth, and sea, and sky, where they are ready to form new colonies and to establish new empires. At the last meeting of our Society, this subject was presented in a very interesting manner by the venerable and intelligent pomologist, Dr. J. P. Kirtland, whose name is familiar to the scientific world. Those who desire to see these views, are referred to the printed report, where an abstract of them is to be found.

During the year that has just past, beginning with October, 1864, we have had an unusually large rain-fall, amounting in its grand total, at this point, to 55.13 inches of water, whereas, according to the accepted authorities, we usually have but about 37.7 inches per annum. This unwonted amount of rain, with its accompanying alternations of temperature, has appeared to be very propitious for the development of parasitic plants of all kinds, and we have consequently suffered unusually from this cause.

These facts are now becoming familiar to all acute observers and readers, but the mildews are often so insidious in their attacks, that some very intelligent cultivators may have overlooked them entirely, nor even have suspected their presence when they have destroyed the entire foliage of their plants. A farmer in the north part of the State was complaining that his grapes did not ripen well this year, and that they had lost nearly all their foliage through the influence of a "heavy rain," as he supposed, which had fallen at a certain period, and had stripped the vines of their leaves. The same rain had produced no visible effect upon the oaks and maples and other forest trees about him, and yet he had not thought of looking for some especial cause of the difficulty about the vine itself; nor, indeed, is it likely that, with an uneducated eye, he would have found the trouble, though this is patent enough to any person who has become acquainted with the appearances presented by the malady in question.

It is hoped that our worthy Vice President, who has devoted much time to the study of this malady, will favor us with a report upon the *Grape Mildew*.

It had been my purpose to have presented to you, upon this occasion, some remarks upon the *Grape Soils*, a topic now attracting considerable attention; but the fear of extending this address to too great a length, has caused them to be deferred for the present.

VINE PLANTING.

Notwithstanding the discouragements that have arisen, like lions, in the path, and which have been sufficient to make some of us falter and even yield, and utterly neglect the vineyards which we had heretofore found productive, still there is a constant increase in the area devoted to vine culture, even in this portion of the State. Garden vines are planted everywhere, and new vineyards of great extent are set out every year in other quarters, particularly in the coal-measures of the eastern portion of the State, and upon the drift that borders Lake Erie upon the northern boundary. The latter region, though further north than our assumed limit for viticulture, has climatic advantages that have rendered it peculiarly desirable as a grape region; but I shall not detain you with details, as they will be furnished in the report of the appropriate committee. We should encourage every one to plant the noble and generous vine of some sort, and when the proper varieties and the most successful situations shall have been discovered, the enterprise of our people will soon produce the vineyards.

INSECTS.

The subject of Entomology, as a most important aid to the pomologist, was earnestly presented to the Society at its last and previous meetings, and will not now be introduced further than to remind you of the importance of the study of these pests, and to reiterate what has heretofore been said, that we must *study their habits, and thus learn how we may best overcome them, and then carry on against them a war of extermination.*

I am happy, however, to be able to state that you now have the matter presented to you in a tangible shape. The Entomological Society of Philadelphia has commenced the publication of a monthly bulletin called "The Practical Entomologist," which is offered for gratuitous distribution among the farmers and agriculturists of the country, who are only asked to send in return twelve cents in postage stamps to Mr. E. T. Cresson, 518 South Thirteenth street, Philadelphia. It is hoped that these bulletins will be found to contain much valuable practical information, which will disabuse the public mind of many foolish and injurious prejudices, and enable us to recognize our friends from among our insect enemies, and teach us to know how best to destroy the latter. This will necessarily follow an acquaintance with the habits of the insects themselves.

I regret being obliged to state that the noble work upon this subject, prepared by my indefatigable friend, Townsend Glover, the naturalist of the Agricultural Department at Washington, D. C., a portion of which was presented to you last year, and is now again laid open for your inspection, is still unpublished by that Department. These plates, and their systematic index, would prove of great value to the farmers of the United States, if the Commissioner were to purchase them, and publish them for distribution. Let us hope that a new and more efficient Commissioner may soon be appointed to this very important office—one who can and will appreciate the real wants of the agriculturists of the country.

Some may consider it unbecoming in me to refer to the feeble efforts in the cause of entomology, which were made in a series of papers or reports rendered weekly in this hall, before the Cincinnati Horticultural Society, during a portion of last year.

They were undertaken with great hesitation, and only with a view to familiarize the public with some of the most common pests of the garden and orchard, in the hope that some person better qualified would be induced to prepare a practical manual upon this subject suited for general distribution. The matter is worthy the attention of publishers, and of some practical entomologist who is better qualified for the task. Such a book is much needed, and would unquestionably command a ready sale; and, if suitably prepared, in a popular style, divested as much as possible of the perplexing language of the science, it would undoubtedly be of great service to the agricultural community.

I am happy to direct your attention to the handsome work of Dr. Trimble, known to some of you as a devotee to the subject of the preservation of our fruits from the raids of devouring insects. The volume before you treats chiefly of the apple moth and the plum curculio.

AGRICULTURAL COLLEGE.

In my last annual address I presented for your consideration a series of resolutions upon the subject of industrial education which you adopted. They very emphatically deprecated the subdivision of the Congressional Fund among the State Universities, or other collegiate institutions which might lay claim to a share of the proceeds of the grant of Congress, upon the plea of establishing professorships of agriculture and mechanics.

It is hoped that our Legislature has acted wisely upon the excellent suggestions upon this subject contained in the annual message of our late lamented Governor, who was himself one of the *industrial class*, and fully appreciated the object of Congress in making this grant for the benefit of the whole people, with the conditions that it should be applied for the advancement of *industrial education*.

The committee of our State Legislature, as well as that of Indiana, have been at work upon the matter committed to their charge, and we hope that our earnest wishes upon this subject will have a happy influence upon them.

Our latest advices from the commissioners of our Legislature, into whose hands this matter has been intrusted, are, that they have been examining several points where propositions had been made for the location of the new institution, and that they are likely to report upon two localities, because no central one had been offered that was acceptable. It is also stated that one of these points will be Miami University at Oxford, Butler county. In case any of the established colleges be selected, it is sincerely hoped that an entire reorganization of the institution shall be insisted on, as the great object we had in view in asking this grant, would otherwise be defeated. We can not expect *industrial education* at the hands of those who have been heretofore conducting the literary institutions of the country, since they have been aiming at far different results from those which the friends of this movement have been most earnestly desiring to effect.

Our friends in Illinois will hold a large meeting next week, at Bloomington, for the purpose of settling some principles for the guidance of their Legislature.

THE AMERICAN POMOLOGICAL SOCIETY.

Let us not forget that the next meeting of the National Society is to be held in the West, nor allow it to be said that the people of this great region have slighted the opportunity by neglecting to attend its sessions, as they have been too apt to do when the meetings were confined to the seaboard. This is a national society, and now that an effort to have its influence felt in the valley of the Mississippi has proved successful, it will be our own fault if we do not make it a source of great benefit to ourselves. This meeting will be held at St. Louis, commencing on the 4th of September next, and will, it is hoped, be largely attended by delegates from all the States, more of which will be represented than for several years. It will be a solution of the great problem of reconstruction. The venerable founder, supporter, and head of that Society, the Hon. Marshall P. Wilder, writes in a most encouraging manner respecting our prospects for having, upon that occasion, the best meeting ever held by the society; and it gives me unfeigned pleasure, in which you will all unite, to state that our excellent friend is recuperating from the blighting influence of sickness that has so long severely stricken him, and which cast so dark a shadow athwart his pleasant pathway through the garden of life, threatening to shorten his useful existence here, and to hurry him from us to the vales of perfect flowers and perennial fruits.

OUR SISTER SOCIETIES.

While we may complacently remind each other that ours is the oldest society of this kind in the country, we can not but rejoice at the energy manifested by some of our sister associations in the different States, and admire the successful results attendant upon their labors.

The Fruit Growers' Society of Eastern Pennsylvania has long been doing a good work for that region and for the country at large. In my last annual address, their plan for the more thorough description of fruits was given at length. In it, you will remember, all the details of characters, even to the bark, leaf and buds of trees, was set forth. This society should extend its happy influence over the mountains westward, so as to cover the whole State, and thus become a little more neighborly with us, else possibly we may claim and absorb her rich western borders.

In Western New York we reasonably expect to see a society of sterling merit, sustained, as it is, by pomologists of the highest reputation and of extended experience, being situated in a region peculiarly adapted to fruit growing. It is to be regretted that their proceedings are not published in more permanent form.

Our Hoosier friends, of the Indiana Society, may be almost persuaded to consider their organization as our foster child, for we had the benefit of their assistance as individuals, long before they set up for themselves, and in return some of us continue to take a deep interest in their proceedings.

The pomologists of Illinois very early took a prominent stand, and have continued, in a reorganized form as a State society, to labor vigorously and effectively in the good cause. To their efforts, and to their teachings, many of us will freely admit our indebtedness; and all who know them will concede that they should be acknowledged as a power in the State, to whom their fellow-citizens owe a large debt of gratitude.

Michigan, Wisconsin and Iowa, once linked with Illinois in the Northwestern Fruit Growers' Association, since the demise of that excellent society, have organized severally for themselves, and are doing good work for their several communities, the value of which will doubtless be realized by those who are to reap the fruits.

Missouri, not to be behindhand, has her State Society also, and though laboring under some disadvantages, and while its membership is confined to but a small area, this association embraces many noble and enlightened men, who have already made their mark, and have demonstrated the great resources of the State, as a fruit growing region. This will be made manifest to all who may attend the American Pomological Congress, to be convened at St. Louis next September. Kentucky follows in the wake, and has again made a noble effort to come up to the mark by organizing a society of fruit growers during the past autumn.

In our own State, a parallel society to our own has been successfully inaugurated within the past year, not with any intent to impair our usefulness, however, nor to interfere with our domain, since he who has been most urgent for its establishment, and most active in its organization, is one of ourselves, at the very first aiding us by his eminent knowledge, and laboring untiringly as an officer in our ranks. I refer to the Northern Ohio Grape Growers' Society, soon to be known, we hope, as the *Lake Shore Society*, so as to embrace the intelligent vine planters of all that favored region, whether within or beyond the limits of Ohio; by this means it will extend to Michigan on the one hand, and to Pennsylvania and New York upon the other.

FUNDS.

As you are aware, my friends, ours is not a wealthy corporation, and the contributions of our limited membership are not sufficient to meet the annual expenses of the Society. The last Legislature made a small appropriation for our benefit, which was very acceptable.

In view of the amount of good done to the public by our efforts, and spread before them in our published reports, it is recommended that a committee be appointed to solicit further aid from the next Legislature; and you are requested to present the matter personally to the members of the Assembly, from your several districts, urging them to favor such an appropriation.

FRUIT PRESERVATORS.

It is always a matter of great importance to preserve our fruits in a sound condition until their proper period of ripening, and it is often desirable to defer that period as long as possible Various methods have been proposed to effect this object, mostly depending upon the maintenance of a low degree of temperature. Of all the plans laid before the public, that of Mr Nyce, which has already been explained to this Society, appears to be not only the most philosophical, but the most successful. We have had our summer fruits kept until late in the autumn, with scarcely any change or ripening; indeed, they were preserved, for two months, as firm, and apparently as immature, as when they were first gathered from the tree.

The perfect isclation of the chambers from the atmospheric and terrestial heat, by means of non-conducting walls and floors, enabling the inventor to reduce the temperature of the air to nearly the freezing point, by means of ice resting upon a metallic floor, which forms the ceiling of the chamber. In addition to this, the atmosphere is kept dry by the use of chloride of calcium, which rapidly absorbs all the moisture that exhales from the fruit after it is introduced.

The establishment at Cleveland was described in the last report, and your attention is now called to the subject because there is an establishment near us, which has been very successfully conducted by Messrs. Smith & Caldwell, of Newport, Kentucky, just across the river, which some of you may wish to visit and examine. For its preserving power you are referred to the specimens of fruits upon the tables. These enterprising parties have been so successful in their first experiments, that they have, this year, put away 14,000 barrels of apples, which they can preserve perfectly, until the market is exhausted of the present supply, when they can command the highest prices for their fruit.

NECROLOGY.

Again, during the past year, we have been called upon to mourn the demise of some of our valued members. Like ripe fruit, they have fallen to the lap of earth.

Theodore V. Petticolas, of Clermont county, was one of our earliest members, and intimately connected with our labors. For a long time he was a most active participant in our meetings. He was quite an extensive fruit grower, and rendered no little assistance to this Society in its early efforts, when we were groping in the dark with a confused synonomy.

John P. Foote, who was always foremost in good works, became a member of our Association many years ago, and, though not practically engaged in fruit growing to any great extent, his pleasant, social manners, his good judgment and his refined and cultivated intellect, always made him a most welcome visitant at our meetings, whether in public or private. Of him we may say, in the words of our poet,

> "None knew him but to love him,
> None named him but to praise."

Mr. Foote died June 11, 1865, after a long confinement to his chamber, aged 82 years.

In an obituary notice, prepared by Mr. George Graham for the Cincinnati Horticultural Society, of which Mr. Foote was one of the oldest and most valuable members, after enumerating his social virtues, we are told that:

"As a patriot, he was of the Washington school, ardently devoted to the Union and the institutions of the country, always advocating freedom, law and order.

"On his death-bed, his great desire was to live to see the rebellion completely crushed, and the nation preserved in its integrity, that the world might learn that a republican form of government was the strongest, and the best adapted of all others, to insure the happiness of the people."

When men of such pure and unsullied characters are removed from a community. a blank is created which is most difficult to fill, and in this case of our eminent member, it will be long before we can find the vacancy filled by any one possessing the exalted virtues which shone so brilliantly in his character. A man who lived, not to grasp and accumulate gain for himself, but to distribute it, and to promote the good of all his fellow-creatures around him. Your committee, therefore, offer the following resolution:

"*Resolved*, That the members of this Society, having the highest regard for the character of our late fellow member, John P. Foote, will cherish his memory and honor his many virtues, illustrated in all his walks of life, from early manhood to old age."

A sentiment which we may safely adopt as our own. * * * *

ANNUAL FINALE.

Before closing the annual address, I am constrained again to acknowledge to my kind friends the honor they have so long conferred upon me, to thank them for the high consideration they have manifested toward one who feels himself so unworthy of their confidence, in thus selecting him to act as their head, and also to thank you individually for the very cordial and kindly courtesies you have always manifested toward your officers and toward one another at our meetings.

In conclusion, I know you will heartily unite with me in the hope that the Ohio Pomological Society may long continue to exert a happy influence upon the fruit growing interests of our country; and that, after the snows of many winters have whitened our locks, and even when the majority of those of us who are now so earnestly pursuing this pleasant and useful pursuit shall have gone to their final rest, others, with greater abilities and stronger devotion, will have come upon the stage of action to take our places, and to carry on the labors we have so happily begun.

WEDNESDAY EVENING: Invitation was given for all present who chose to become members of the Society, on payment of one dollar annual fee.

The report of the Treasurer was given, as far as it could be at the time, and the Secretary made a verbal report of the doings of the committee *ad interim.*

Discussion on Pruning, &c.—Mr. J. A. Scott, of Toledo, was not an advocate of severe pruning of orchard trees. In our sunny climate he thinks the shading of the fruit by the leaves is beneficial, provided there is a chance for the admission of light and free circulation of air. As to the time for pruning, prefers to do it late in spring, when the sap runs freely and wounds heal quickly.

Mr. William Heaver, of Cincinnati, concurred with Mr. Scott: said the English practice of opening the tops of bearing trees to admit the sun, was not adapted to this sunny climate. Nature knows better than Englishmen; trees want protection from hot sun in this climate. The best time to prune out suckers and water-sprouts is in August; will start again if done in spring. Bending of tops by fruit, causes water sprouts. Peach trees wanting new wood should be pruned in spring.

Mr. Ferris, of Indiana, asked whether observations had been made as to the effects of training peach trees with low heads. He had found the high trees most productive where he had the same variety in both styles; prunes but little, only cuts out dead wood and keeps in regular shape.

Mr. Bateham said, no doubt if tall trees were growing among low ones, the former would rob the latter of nutriment derived from the air, and consequently be more fruitful; but where all were alike low, he believed they would bear as well as if high. He disapproved the system of pruning called "shortening in," as recommended by Downing years ago; it causes the heads of peach trees to grow too dense to admit sufficient air and light.

Mr. Ferris also condemned the practice — believed it produced yellows.

Mr. Thompson, of Cincinnati, spoke of the method of pruning and training peach trees, practised near Carlisle Station, Miami county, by Mr. Bolton, causing the trees to head near the surface of the ground, then covering the branches in winter, so as to protect the fruit buds from destruction by the winter.

Mr. Ferris said the practice was measurably successful, but was attended with a great deal of labor, hence was not likely to be generally adopted. The branches are trained to spread low, and a mound of earth is thrown up around each tree, so that they can be covered with soil during winter; this retards the blossoming somewhat, still there is danger afterwards of losing the crop from frosts after the blossoming. He had heard of this system being practised in southern Indiana with some success, and he thought it might pay where there was a good market for fruit and a light soil, with labor not very dear; on heavy soils it would not answer.

Mr. Westervelt, of Delaware, prefers low heads for pear trees to prevent sun-scald, causing black blotches on the stems.

Mr. Powers, of Wood county, prefers low heads, and prunes very little after trees commence bearing. In pruning young apple trees, when growth is desirous, does it very early in spring, or after the leaves are out. If cut just before the leaves come out, the sap oozes and scalds the bark, causing it to turn black; no such injury after the leaves are fairly out.

Mr. Hall, of Toledo, said his rule was to cut young trees back early in spring, to cause thrifty new growth; but prune in summer where growth was not desired, but only to improve the shape or to get rid of sprouts.

Mr. Thompson said, in planting standard pear trees he cuts off the stems near the ground, and encourages several shoots to grow up, forming trees with several stems. They do finely.

Judge Hoadley, at planting, cuts back so that tops shall nearly balance the roots. He inquired how a pear tree in good shape should be pruned so as to encourage the formation of fruit buds.

Mr. Pierson, of Cincinnati, said he pruned weak branches in spring and strong ones in summer. Otherwise he finds too much top growth.

Mr. Fahnestock, of Toledo, four years ago planted a pear orchard of 1,200 trees. He shortened the long roots, and trimmed the laterals in pyramidal form. In spring, he shortens to a good bud, and in summer only removes dead wood and straggling shoots; prefers naked stems only two feet from ground.

Mr. Buttles, of Columbus, had about fifty pear trees, mostly dwarfs; prunes in the fall; standard trees, as they come from the nursery, tops are too high and roots poor; he cuts tops all off within two feet of the ground.

Mr. Scott has planted several orchards; at planting cuts back the tops pretty severely to correspond with the roots; he thinks trees planted in the fall should not be pruned till spring.

In pruning grapes, Mr. Griffith, of North East, thinks the *time* not material after the leaves are off and until the sap starts in the spring, provided not hard frozen. He had operated on vines for many years; had about one hundred thousand set in vineyards; had tried experiments to settle these questions; some people adopt a theory then look for facts to support it, and soon cry "eureka;" he had learned to be modest; made it a rule to study nature closely and humbly with reference to all these operations upon vines and trees; never prunes severely; unless you *know* where to cut, forbear; nature knows her own business; prefers to say to her, "If you please."

Mr. Knox, of Pittsburg, agreed with Mr. Griffith; pruned grapes any time, in fall or winter or summer, when not frozen.

Mr. Heaver, of Cincinnati, thinks there is material difference between pruning in the fall or latter part of winter, especially if the trimmings are to be used for cuttings; thinks the buds are not as dormant in winter as they seem; cuttings made in the fall and buried in sand will become callous, and even make spongioles before buds start in the spring; buds contain the germs of perfect plants, and he thinks matter goes from buds to strengthen the roots, so that there is a loss to tree or vine by pruning in the fall. He was always open to conviction; if in error wished to be set right; he thinks vitality resides in buds only; trees and vines can't grow without them.

Mr. Griffith differed from Mr. Heaver in opinion, as to any injury resulting to vines from pruning in the fall, and concurred in t
was best for the cuttings; believes the buds on vines are dormant till the warm weather sets the sap in motion.

Dr. Warder said the difference in climate may have led to the difference in opinion of the two gentlemen; no doubt the buds are more dormant in cold than in warm climates.

Mr. Ferris, of Hamilton county, had noticed in the nursery that young peach trees cut off early made better growth than if done late.

Mr. Miller, of Springfield, had tried cutting off peach trees early in winter; result not as satisfactory as when deferred till spring.

Mr. Mottier, of Cincinnati, said, in 1837 or 1838 Dr. Mosher asked him for grape cuttings, to carry to Texas, early in October, soon as leaves were mostly off; wished him to trim a few rows and leave as many, then watch the results; he could see no difference, only he thought the buds started a little sooner than vines trimmed early. He has adopted the opinion that it will do to trim grape vines any time when the leaves are off, until the sap starts in spring.

Mr. Buttles was firmly of the belief that the buds were not dormant in winter, except frozen; and that it was best for cuttings to trim early, but for the vines it might be better to trim late.

Dr. Warder gave a brief lecture on the structure and economy of *buds*, their resemblance to seeds, and their functions in propagating by cuttings and single eyes; also the difference in plants thus propagated, showing that there was no ground for the objections which some people urged against grape plants raised from single eyes, provided they were treated so as to be healthy and vigorous, as is done by intelligent propagators.

ON GRAPE SOILS AND VARIETIES OF GRAPES.

Dr. Warder read an essay on the grape soils of the different sections of Ohio—the Sandusky District, Lake Shore, Eastern Ohio River, and around Cincinnati. (This essay will be found in the latter part of this report.)

Mr. Kenyon, of Adams County, said there were very large native vines in some of the river bottoms in his section; he knew of one that measured one inch less than four feet in circumference, one foot from the ground, and at least fifty feet in height. He had not seen the fruit.

Mr. Bateham, of Lake County, said he had seen very large native vines on wet bottom lands in his section; did not think they were safe indications of the suitableness of the land for vineyards.

Dr. Spalding, of St. Louis, referring to the prevalent opinion that clay soil was best for the Catawba grape, said, in Missouri, he had not found it to do as well on clay as the Concord. He has a vineyard on the river bluff, near St. Louis, where the strata of rocks run obliquely down the hill-side, and the soil is alternately sand and clay, and the rows of grape vines crossing both kinds of soil. Last season the mildew was worse on the clay than on the sand, especially on the Catawbas; but the Concords seemed to show the opposite.

Mr. Buttles said the Concord does well on clay lands around Columbus. Mr. Westervelt, of Delaware county, said his did well on sandy and gravelly soil.

Mr. Fahnestock and Judge Jones, of Toledo, said the Catawba and Isabella failed to ripen well on the Maumee river; Concord ripened finely —land not well drained.

Diana.—Mr. Campbell thought this variety did better on poor than on rich soils; on the latter it runs too much to wood, and ripens poorly—instanced at Fay's, at Portland, New York. He also thinks it should not be trimmed too closely. Mr. Knox had found the Diana fine until the past season; should not condemn it for that. Several others spoke in its favor.

Creveling.—Mr. Knox said it had been overlooked, or under-estimated; thinks it one of the best—good for table and for wine—hardy, healthy and productive. Mr. Bateham had but one objection to it—the straggly shape of its bunches, giving the fruit a wild look, unsuitable for market. Mr. Knox said this was less apparent on old vines with good soil and culture. Mr. Campbell said it made good wine, like Norton's Virginia and Ives' Seedling. He spoke of gentlemen in Pennsylvania who found it very productive, and free from mildew or rot this very bad season.

Ives' Seedling.—Mr. Graham, of Cincinnati, exhibited two samples of wine of this variety, one and two years old, which was tasted and complimented by most of the Society, especially the oldest sample. Mr. G., by request, gave an account of the origin and history of the grape, as follows:

> This grape was produced from seed by Henry Ives, of Cincinnati. After the vine begun to bear he brought cuttings of it to the rooms of the Horticultural Society for distribution, and Colonel Waring, of Indian Hill, Hamilton County, planted a few in his vineyard. After these vines came into bearing, the Colonel made some wine from the fruit, but of an inferior quality, owing to the unripe state of the grapes, which had assumed a dark color, and appeared ripe, long before they had matured sufficiently for pressing. Waring, however, was pleased with the appearance of the grape, which induced him to enlarge his vineyard with the Seedling, but still failed to produce a fine quality of wine, until Dr. Kittredge, his neighbor, made wine later in the season, from ripe grapes; this proved to be good, and the grape, that season, was known as the Kittredge grape.
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> The Catawba, about this time, having failed in Waring's vineyard, he dug them up and turned his attention exclusively to the cultivation of Ives' Seedling, and two years since, he made about five hundred gallons superior wine; his grapes that year having been very little affected by the mildew or rot, and the yield about five hundred gallons to the acre. The wine weighed, in the must, that year, 86°, and the weight of alcohol contained in it 13¼ per cent., when separated by a French instrument. (It would not show so much alcohol by the German scale.)

[illegible] Colonel Waring made about five hundred and fifty gallons of wine, [illegible] exception of a small portion of the vines which were highly fertilized [illegible] manure, the vineyard had very little appearance of mildew or rot.

[illegible] vineyards in Waring's neighborhood, where the vines grew in the native soil, [illegible] manure, were not affected by rot, and the wine of this year's pressing is of [illegible] character, selling from the press at four dollars and fifty cents per gallon. Colonel Waring, I believe, expects to get six dollars per gallon for this year's wine.

The grape is a dark purple, of large size, and large cluster, shouldered and compact as the Catawba. The vine is a remarkably strong grower, carries the leaf very late in the season, and grows very freely from cuttings in the open ground, or from buds forced by heat.

The wine is a beautiful claret color, of pleasant flavor, and by some connoisseurs is considered as a high character of Burgundy, by others as a very superior claret. With our German wine drinkers, it is now the favorite wine, and brings the highest prices.

It may be proper here to mention that Ives distributed the cuttings the first year under the name of "Ives' Madeira Seedling," and Waring got it by that name; but those who understand the habit of the vine, and the appearance of the leaf, have given it the name of "Ives' Seedling," being convinced that it was not produced as Mr. Ives had supposed, from the seed of a foreign grape.

IONA.—Mr. Campbell did not know of any one, besides himself, who had fruited it in Ohio; had a few bunches on one vine; had no rot, but a little mildew, like many others. He had a letter from Mr. Husmann, of Mo., saying the vines mildewed and fruit rotted with him this year.

Mr. Cramer, of N. Y., (agent for Dr. Grant) said in New York the foliage and fruit of Iona had withstood the unfavorable season quite as well as Isabella and Catawba.

Mr. Bateham saw vines of Iona and Israella finely in bearing at Waterloo, N. Y., early in September, the fruit nearly ripe, and foliage as healthy as most other varieties. He did not think they had been over-praised; he believed they were as exempt from disease as the Delaware, and all counted that a hardy and healthy variety, though it failed somewhat the past season.

Mr. Buttles said he planted fifty vines of Iona the past spring; they started finely, but foliage failed in summer, as did also the Delawares by their side; did not think this year a fair criterion.

Mr. Knox said he had hopes the Iona would prove all that was expected of it; but this year his vines mildewed very badly; was afraid it would fail in his locality, as also the Delaware.

Mr. Cramer said he had seen even the Concord badly mildewed in several localities this year, but no one would condemn it for that.

Mr. Storrs, of Painesville, had no fault to find with vines of Iona; no mildew with him, or anywhere, so far as he knew, along the Lake shore.

ADIRONDAC.—Mr. Buttles asked what should recommend this variety?

Mr. Campbell replied, that it ripened extremely early, and was of very good quality; hence, if vine proves hardy and healthy, it will be valuable.

Mr. Beeler, of Indianapolis, said a neighbor of his had it fruit freely the past season, and is well pleased with it—fruit very early and good.

Mr. Miller said he found the growth of young vines pretty good last year; this season mildewed.

Mr. Marshall said at Lockport, N. Y., Mr. Hoag's vines, in bearing two years, mildewed badly this season.

LORAIN.—Mr. Bateham spoke favorably of this new variety, for which a premium was awarded as the best new seedling at the recent Grape Show at Sandusky.

Mr. Graham said he examined the seedlings of Mr. Hopkins at Sandusky, and was very much pleased with several of them; hopes they will be carefully tested in different localities, and the results made known to the public. The one named Lorain, he thinks is the best flavored American white grape he has seen. Mr. Werk had expressed the opinion that this and another white seedling of Mr. Hopkins' would prove very excellent for wine.

ANNA.—Mr. Bateham spoke of a sample of wine made of the Anna and Delaware, at the recent show of Mr. Knox's at Pittsburg, which was pronounced by the committee exceedingly fine. Dr. Warder also praised it very highly.

Mr. Knox said, in '64 he happened to have some Annas ripen well, and his German wine maker, perceiving the high flavor of the fruit, at once resolved to try it for imparting a little more *bouquet* to the Delaware. The result was a complete success. The Diana and Delaware is also a very good combination.

NORTON'S VIRGINIA.—Mr. Graham said this was much approved in Cincinnati for making Champagne wine.

Dr. Spalding said it did finely in Missouri, except a little mildew this year; thinks it the best wine grape in America, also for Champagne and for mixing.

RINTZ SEEDLING.—Mr. Graham said this was another black grape, becoming popular about Cincinnati; makes a wine like Norton's Virginia.

CONCORD, FOR WINE.—Mr. Buttles wished to hear from Dr. Spalding on this point.

Dr. Spalding responded, that in Missouri the Concord is regarded as a good wine grape. The wine sells as high as Catawba, about $3.00 per gallon; yields more to the amount of fruit, say 12 lbs. to the gallon; the average of Catawba is 12½ lbs. The wine has a somewhat peculiar flavor, a little foxy, not liked by most persons at first, but they soon learn to like it; more profitable than any other wine grape in the southwest; thinks it better at the south than north; the fruit on the North River a very different article from that in Missouri. He is preparing to plant twelve acres of vineyard, and ten of it will be Concord.

GRAPE PROPAGATION AND PLANTING.

Mr. Campbell and Mr. Griffith expressed the opinion that the manner in which a plant was grown made very little difference, provided it was healthy, well grown, well rooted, and well ripened.

Dr. Spalding was prejudiced against the practice, quite prevalent in Missouri, of raising plants from green layers; thinks they do not make healthy vines. Mr. Knox raises only from single eyes, started in greenhouse, then potted and afterwards set in open ground to complete their growth and ripen; they make the best plants. Mr. Campbell and Mr. Storrs do the same with all choice kinds.

Mr. Griffith—in response to the President, who alluded to some *secret* he was supposed to possess—said he hated those who button up secrets in any profession, and in matters pertaining to horticulture especially; hence he felt uneasy in being in this position before the Society. He did not think he could justly be said to have any secret process of propagating vines; and yet it was true he had stumbled upon a method different from most others, by which he had been very successful in growing a style of plants from single eyes, in open air, that were eminently satisfactory to purchasers, as some present could testify. If he should tell how it was done, he presumed that older propagators would say it was no secret at all; and believing that he was entitled to the benefit of his discovery for a little longer, he would test it for another season; then, perhaps, all would be able to judge of its value, and practice it if they choose.

Mr. Thompson had been very successful with layers, especially of Concord, Norton's Virginia, and Ives. Mr. Kenyon had succeeded much better with layers than cuttings. Mr. Westervelt, of Delaware county, also preferred layers and fall planting.

Mr. Fahnestock approved layers; summer layers of Concord were very good; spring layers very strong, but unprofitable for sale—too much work to dig them. Delaware spring layers very good; summer layers did not ripen well. Prefers spring planting on account of danger of heaving out in winter, if planted in fall.

Mr. McCullough, of Cincinnati, preferred fall planting of cuttings. Mr. Thompson plants everything in the fall with best success.

Dr. Warder said his theory was, that in planting cuttings, the ground should be warmer than the air, to promote the formation of the roots; hence fall planting was preferable. When buds and leaves are desired, plant in spring.

Dr. Spalding prepares his land in the fall; makes his cuttings early in winter, ties them in bundles, and buries them upright in sand; then plants early in spring. He does not fancy one-eye cuttings; can't plant the vines deep enough; uses horse culture, and roots tear off if near the surface. If vines are planted shallow, can't get the roots deeper afterwards. He advocates buying the best plants at full prices, rather than have poor ones at no price at all.

Mr. Storrs referred to experiments of Mr. Carpenter, at Kelley's Island, in setting vineyard plants and cuttings in cavities or basins, then filling up as the growth advances, with complete success—as a remedy for the difficulty suggested by Dr. Spalding.

Mr. Griffith said he liked to be *punched.* He defended his style of plants, and claimed they were just such as Dr. Spalding needed; were good for deep or shallow planting. If soil was good, grape roots would go down; he had found them 12 feet below the surface, and in England they had been found 35 feet. Some go near the surface after nutriment, and if destroyed he believed evil results followed. He preferred to say *if you please,* to grape vines, rather than quarrel with them, or compel them to grow just as he pleased. His soil is a gravelly loam, (drift) with a porous subsoil; no draining necessary, except in a small portion. Commenced planting seventeen years ago; Catawba crops averaged three tons per acre all the time, with no manure; this year, 498 gallons of juice per acre; part of his vineyard, the must weighed 82° by the scale; has added to vineyards each year, till he now has eighty acres, and intends planting more next spring. He trains to stakes, vines mostly six by six feet apart, but Mottier, who is now with him, says seven by seven is better.

Dr. Dunham, of Collamer, Cuyahoga county, said, seven years ago he bought a farm with one and a half acres of Catawba grapes on it, not yet in bearing. That vineyard had been quite successful. This year the crop was six tons to the acre of well-ripened grapes, bringing the highest price in the Cleveland market. The soil is a stiff yellow clay, on side hill, with only surface drainage. His grapes ripen much better than others, in his section, on sandy soil; he thinks the roots run too deep in sandy soil, and, finding coolness and moisture, the fruit does not ripen so well as when the soil is so compact as to compel the roots to remain near the surface.

Mr. Spalding said, in Missouri he had tried almost every variety of soil; Catawba would not succeed on rolling clay soil well drained; Concord and Hartford Prolific did well; he tried experiments in rainy times to test the speed of drainage, by digging holes and watching for the disappearance of water, and found it too slow—on others soils, speedy enough. He plants vines mostly eight feet apart each way, and cultivates by horse, owing to the high price of labor.

Mr. Buttles, in preparing land for grapes, used Hall & Spears' Subsoil Lifter (of Pittsburg); prefers it to all other subsoil plows; sets his vines eight by eight feet apart; underdrain of tile every fifth row; cost of drainage, fifty dollars per acre.

Mr. Knox plants grapes eight feet by six, trains on trellis, and grows strawberries between the rows; cultivates altogether by hand; prepares ground by plowing and subsoiling fifteen to twenty inches deep. He does not approve of plowing or deep stirring of ground among bearing vines.

THURSDAY MORNING.—The President announced that he had received a polite note from the President of the State Sorgo Association, now in session in this city, inviting the members of this Society to meet with them and participate in their deliberations (at Mozart Hall).

On motion of Mr. Buttles, the invitation was accepted, and a like invitation was sent to the members of the Sorgo Association to meet with the Pomological Society, and participate in its discussions. (This invitation was subsequently accepted by that body.)

An invitation was also presented from the Messrs. Caldwell, of Covington, Kentucky, for the members of the Society to visit their fruit house, erected the past year on the plan of Prof. Nyce, of Cleveland, from which specimens of fruit were present on exhibition.

On motion, this invitation was accepted, and a committee, consisting of George Graham and Wm. Heaver, were appointed to report on the house and fruit.

The Committee on Fruits exhibited reported the following, as on the tables:

Toledo Horticultural Society, 140 varieties of apples, and five varieties of pears; specimens remarkably fair and handsome for this season.

J. D. G. Nelson, Indiana Horticultural Society, 19 varieties of apples.

Mr. Cook, one variety of pears.

Ellwanger & Barry, Rochester, N. Y., 30 varieties of winter pears—a very fine display.

Caldwell Bros. and Prof. Nyce, from fruit house, Covington, 16 varieties of apples, eight varieties of pears, and eight varieties of grapes, in very fresh condition.

H. Myers, S. Bend, 39 varieties of apples.

S. Manning & Co., Cincinnati, 10 varieties of apples, and one variety of pears.

D. Kenyon, Rome, Ohio, four varieties of apples.

James Trint, Lewis county, Ky., nine varieties of apples.

W. B. Woolman, Cincinnati, nine varieties of apples.

Dr. Stearns, St. Mary's, 31 varieties of apples, and one variety of pears.

Lewis Jones, Centerville, Wayne county, Ind., nine varieties of apples.

J. T. Plumley, and several others, specimens of apples for correcting names.

On motion, the Society adjourned from 10 o'clock A. M., till 2 o'clock P. M., to give members an opportunity to attend thanksgiving services at the churches as they might be disposed.

THURSDAY AFTERNOON.—The Committee on the Nomination of Officers reported the following, who were elected officers of the Society for the ensuing year:

President—Dr. J. A. Warder, Cincinnati. *Vice President*—G. W. Campbell, Delaware. *Secretary* and *Treasurer*—M. B Bateham, Painesville.

Ad Interim Committee—J. R. Miller, Springfield; J. J. Harrison, Painesville; George Powers, Perrysburg; W. Heaver, Cincinnati.

The President read a letter received from Dr. J. G. Nelson, of Fort Wayne, President of the Indiana Horticultural Society, regretting his inability to attend this meeting, and enclosing some observations on apples, of which he had sent specimens for exhibition. The communication was ordered to be published in transactions of the Society. A number of other letters of regret, &c., were also presented.

The Committee on Business reported the programme for the afternoon discussion on raspberries and blackberries; and for the evening, grapes and their culture.

DISCUSSION ON RASPBERRIES.

Black Caps.—Mr. Mears said he lived in the heart of the Black Cap region; many hundred bushels sent to market from his neighborhood. He had not been able to see any difference between what is called the *Doolittle* and the native Black Cap; the best patch he had seen was one which was set with plants taken from a field that had been set with native plants twenty years ago. The variety called *Miami* was distinct from the common Black Clap or Doolittle; berry larger, a little later, and of a slightly brownish hue when ripe.

Mr. Fahnestock said the Doolittle was very profitable as a market berry at Toledo.

Ohio Everbearing.—Dr. Warder said this was simply a fall-bearing variety of Black Cap; he thinks it is apt to run out if plants are not renewed every third or fourth year; it also needs good culture; then very productive; he esteems it highly for family use. It is sometimes difficult to propagate, owing to the tips producing blossoms and fruit instead of striking root. Some confusion had existed owing to plants having been sent out from Cincinnati as this variety, which were simply the common Black Cap.

Mr. Mears cultivates both varieties; can propagate the Everbearing from young plants only; to secure a good fall crop keep the plants growing; and as soon as the early crop is gathered cut away the old stems. Mr. Knox propagated this and the Catawissa by cuttings of the root, started in a hot-bed.

Mr. Buchanan, of Cincinnati, approves the Everbearing; thinks the second crop of better quality than the first.

Dr. Warder spoke of an improved variety of the Everbearing called the *Daily Bearing*, originated by Mr. Griggs, of Perry county, several years ago, and propagated by Mr. Sprague, of Newark. It seems that some difficulty has existed on account of the plants having got mixed with the common variety; but it is claimed that there are some genuine plants, and they will yet be redeemed.

Mr. Miller had seen the "Daily" variety in the garden of Mr. Campbell, and believed it distinct from and better than the old Everbearing.

American Red, *Allen* and *Kirtland* were discussed. Objected to by some on account of tendency to "sucker," especially the Allen. Mr. Mear's succeeds well, and gets fine crops, by cultivating in rows, and hoeing out surplus suckers while small, leaving enough of the best canes for fruiting. Mr. Campbell thinks the Kirtland the finest and best of the hardy red sorts. Mr. Weltz, of Wilmington, succeeds well with the Allen—makes wine of the fruit. Others could get no crop from it.

Purple Cane.—Mr. Mears called this the poor man's berry; very hardy and productive, but too soft for market.

Philadelphia.—Mr. Knox said the New Jersey fruit growers extol this too highly. Dr. Warder and others agreed. It seems hardy and productive, but the quality is poor. Mr. Bateham said it was grown at Sandusky by Mr. Cowdery and others, and regarded as valuable for its hardiness and productiveness, though not of the very best quality; he repeats, what he has before stated, that we are yet in want of a *first rate hardy raspberry.*

BLACKBERRIES.

Lawton.—Much diversity of opinion and of experience as usual respecting it; found of no account at Columbus and Delaware; kills in winter and dries up in summer. In Morrow county, Mr. Westervelt said, it does well; also in most localities along the lake shore, but not a very sure crop.

Wilson's Early and Kittatinny.—New varieties much praised at the East; not yet tested in Ohio.

Dr. Warder spoke of several white varieties, of some interest to amateurs, but not of any particular value. He also inquired about *dewberries*, but did not elicit any valuable information. Mr. Ratcliff, of Indiana, said a number of sorts of dewberries had been tried for cultivation in his neighborhood, but without any success. Mr. Miller said the vines grew freely, but produced no fruit except in some peculiar localities.

Mr. Knox cultivated the Lawton blackberry with profit; by giving it as much care and labor as strawberries, he believed the crop paid about as well.

Ohio Beauty.—Mr. Marshall said he had given this name to a native blackberry; fruit large, long and fine; is testing it in cultivation, as to productiveness, &c. Several other gentlemen spoke of fine large native berries to be found in their fields and woods; some had been tried for cultivation with no very satisfactory results.

DISCUSSION ON STRAWBERRIES.

Agriculturist.—Mr. Buttles is much pleased with the growth of plants;

some set last spring bore fruit late in summer; one plant had a dozen fair berries; but he lost many of his plants bought of Mr. Knox; they arrived in bad order.

Mr. Knox said he was glad to make explanation; he bought all the plants of Mr. Judd last spring, and owing to some detention on the way, they reached him in bad condition; but Mr. Judd replaced them to him, and he had done the same to his customers as far as they had informed him of their failure. The plants multiply rapidly and will soon be quite plenty. Mr. Mears, of Clermont county, said his plants grew well, but did not show any fruit.

Jocunda—"700" *of Mr. Knox.*—Mr. Bateham gave an account of his observations on this variety, explaining how he discovered that the "700" which he saw in bearing so finely at Mr. Knox's was the *Jocunda*, imported and sold by Mr. Saul and others. After visiting Pittsburgh, and while strawberries were in perfection, he found the same variety in bearing in the garden of the late Wm. Case, of Cleveland, and learned that the plants came from Mr. Saul as Jocunda; and on sending to Mr. Saul for plants he learned that a number of years ago Mr. S. had sent the Jocunda to Mr. Knox with quite an assortment of other imported kinds; so that no doubt Mr. K. had lost the label in planting, or when he recorded it as "700." He believed there was now no question as to its identity. He had it on his grounds at Painesville, and from all that he had seen of it for two seasons past, he concurred with all that had been said in its praise as to its growth and size, beauty of fruit and excellence of flavor; considered it decidedly the best of all foreign varieties; he is not yet sure that it will prove sufficiently productive to compete with the Wilson for profit as a market variety.

Mr. Knox said the fruit was uniformly large; no small ones; ten or twelve filling a pint measure, and so fine in color and quality as to command the very highest price in market; bears carriage so well that he had often sent them to New York and Philadelphia, where they sold for one dollar per quart. With him this variety was quite as productive as the Wilson and Russell, and more profitable.

Mr. Buttles and Mr. Campbell expressed their admiration of the Jucunda as they had seen it at Mr. Knox's. Mr. Marshall, of Massillon, also concurred; had seen nothing to equal it for size and bearing of fruit; flavor not very sprightly, but nearly first rate, and carries well; the plants also seemed hardy and vigorous; some standing in hills, at Mr. Knox's, were five or six years old. Mr. Beeler also expressed his admiration of it.

Fillmore.—Mr. Buttles spoke highly of it; large size, good color and flavor, and produces well.

Mr. Marshall said Mr. Knox placed this second only to Jucunda in his list of the best six varieties.

Mr. Fahnestock said that Mr. Purdy, of South Bend, Indiana, placed this very high as a market variety.

CULTURE OF STAWBERRIES.

Mr. Knox planted in beds of three rows, each eighteen inches apart, the plants fifteen inches in the rows; puts on a light covering of straw in the fall, to protect plants from injury by the winter, and to serve as a mulch in the spring; opens the straw a little by hand where thick, to let the leaves come through; prepares the ground for planting, by simply plowing and harrowing; objects to sward land on account of grubs and grass; plants in spring; cultivates entirely by hand, with hoes; keeps runners cut off, except where young plants are desired, and renews the planting every four or five years; soil a limestone clay, somewhat hilly.

Dr. Spalding and several others did not think it would pay so well to cultivate wholly by hand as partly by horse. He further said they could not obtain plants in time from the north or east for spring planting at St. Louis.

Dr. Warder said one frequent cause of the failure of strawberry plants, was setting them too deep in the ground—should plant the *roots*, not stems and leaves; otherwise they rot in warm weather. And if nurserymen would always remember to puddle the roots with clay, before sending off plants, they would do much better.

The Best Six Strawberries.—At the close of the discussion, it was proposed that a vote should be taken by ballot expressive of the opinions of growers present, as to which they believe to be the best six varieties of strawberries. The following is the result, giving the number of votes each variety received:

Wilson's Albany	18	Agriculturist	7
Triomphe de Gand	15	Longworth's Prolific	5
Fillmore	14	Extra Red	4
Russell	11	Burr's Pine	4
Jucunda	10	Hovey	3
McAvoy's Superior	9	Motes' Seedling	3
Golden Seeded	7	Washington (Iowa)	2

Six other varieties received one vote each.

DISCUSSION ON APPLES.

Friday Morning.—The apple crop having been a failure in most parts of the State, it was not thought best to spend much time at this meeting in the discussion of varieties, as it would be mostly a repetition of what had been said and published before. The following report of the committee embraces the substance of what was said in discussion on apples:

Mr. President—Your committee, to whom was referred the "New and Rare Fruits," would respectfully report that the exhibition is large and particularly fine, and although but comparatively few of them may be said to be "new" or "rare," yet there are many that are thought worthy of attention. Some of the most profitable varieties are of recent introduction, and though known by professional nurserymen, are as dead letters to the people at large, who still plant Vandevere Pippins, Pennocks, Ortleys and many other sorts that were once fine, but are now rejected by the more educated planters.

Of such varieties, we would respectfully call your attention to the Ben Davis, which is largely known also as New York Pippin, Baltimore Red, &c. The tree is very vigorous and hardy, an early and abundant bearer, a great keeper, and, a good market and shipping fruit.

King of Tompkins County is an apple that has been several years before the world, and is now beginning to be pretty generally fruited. It is a number one apple, of quite large size and fine appearance. Its worst fault appears to be the same that applies to so many of the fine Eastern varieties, viz: dropping from the tree before gathering time. It may be proper to say here that many of the most experienced pomologists are of opinion that we must look to the South instead of the North for our best and latest keeping apples. The philosophy of this is very plain. The seasons at the north being so much shorter than ours, the variety, when transplanted into our climate is sure to *ripen up* in its regular time, and after maturation, it begins to lose its solidity and keeping qualities. On the other hand, those coming from the South are looking for a longer summer, and when gathering season arrives it finds them solid and green, and will only *ripen up* next spring, when the warmth again arrives to accelerate or rather inaugurate maturation. The bearing of the specimen orchards of a large number of those Southern varieties will be looked for with much interest.

We would also call your attention to the White Pippin. This is a large showy apple of very regular shape and size. It somewhat resembles the Yellow Newtown Pippin, and is by some confounded with that variety. Its chief points of distinction in fruit are that this is always regular, and Newtown always oblique. The quality of the Newtown is superior. The White Pippin is nearly covered with small green dots. The young growth of Newtown is very slender, while that of White Pippin is heavy. It is very profitable to raise for market.

Peck's Pleasant is not very generally known, but is one of the few large apples that are good enough for the table. It also somewhat resembles the foregoing.

Wagener—A very early bearer and quite profitable with those who have it in sufficient quantity for market. Medium and regular in size, and of a beautiul red color.

Jersey Black.—Some of your committee were surprised to learn that this is a variety not generally known. In many parts of the West it is largely planted and always liked. It is an apple of only second quality, but its great hardiness—thrifty and productive qualities—tend to render it one of the most valuable for market. It is a great keeper, and entirely distinct from the Black Detroit, with which it is frequently confounded, through their mutual cognomen of "Black Apple."

Evening Party.—This is a remarkably fine table apple from Mr. Nelson, of Indiana. He considers it one of the most valuable family fruits. Of small to medium size, fine form and beautiful color, with a delicate and delicious flavor that will always commend it to a lover of *fancy* apples. The tree is good.

London Sweet—Is a beautiful yellow fruit of good quality, much resembling Tallman Sweet. It is somewhat known through Ohio, and especially about Dayton, as Heicke's Sweet—Mrs. Weaver's Sweet, in Eastern Ohio.

Patterson Sweet, from Joseph Plumley, Marietta.—It is considered a misnomer; medium sized, pretty, red apple.

J. A. Scott and George Powers, of Wood and Lucas counties, presented, among others the following, which are believed to be seedlings of that vicinity:

Fort Miami—which is a medium-sized, yellowish, russety apple, of great solidity and good keeping qualities. It has a peculiar flavor, somewhat resembling sassafras.

Spafford Russet is a small and evenly-sized apple. A great bearer and good keeper

Can not be called of first quality, though will be considered valuable by those who are partial to russets.

Pear Apple.—This is of medium size, even, regular shape, very productive and with a flavor strongly indicative, as its name suggests, of pears.

Russet Greening—Has before been presented to you, and is not thought to be of sufficient merit to call for further attention.

Forest Rambo—Much resembles the common Rambo in size, color and general appearance, outwardly; but is sweet in flavor, and we think inferior to the old sort.

Also, some very fine specimens of the popular Western apple, Gilpin, and formerly so, W. W. Pearmain.

Mr. Powers also shows some seedlings, supposed to be from the Belleflower, which we present for the inspection of the Society.

Henry Meyers, of Laporte county, Indiana, presents a most beautiful display of fruit, which has been the centre of attraction. His Belmont, Jonathan, Wagener, Winesap and others, are especially commended. We would also call particular attention to his Canfield, as it is the only plate on exhibition. We think this apple particularly adapted to the making of cider, and that persons in planting commercial orchards should plant it largely.

Mr. Meyers also presents Laquire, which the committee would merely mention, to bring it before the Society. Also, the Harmont, which we believe is a seedling of Mr. Meyer's.

Mr. Lewis Jones, of Wayne county, Ind , presents some interesting specimens, including Henwood, which is a valuable apple, apparently a seedling of either the Yellow Belleflower or Ortley, and so combining the qualities of the two as to almost defy an opinion as to its exact parentage. Mr. Jones also shows Sedgwick, which is a seedling originating in his orchard. The only peculiar merit which he claims for this is, that it is a regular and very abundant bearer.

Mr. Scott, of Toledo, presents very fine specimens of about thirty sorts, of which Esopus Spitzenberg and Baldwin are particularly noticeable. Also, Ladies' Sweeting, which we wish to notice especially, as last year there was some confusion created in regard to it. Your committee are confident that the specimens before them are correct, while those at Painesville were an entirely distinct and inferior apple.

Grimes' Golden Pippin is again presented by S. B. Marshall, of Massillon. This variety is personally known to nearly all of you, and needs no repeated description. We wish to call your attention to its great hardiness and productiveness. Its beauty of finish and fineness of quality will commend themselves to all. For over seventy years, from the best information in the reach of the committee, this apple has not failed to produce abundant crops of the finest fruit.

May of Myers—or as it is commonly called—*May Apple*, is on the table from Indiana. This is a straggling, ugly grower, and is disliked by nurserymen, but is valuable for its keeping qualities. It is frequently kept over a year, and is by many considered an invaluable variety.

Messrs. Ellwanger & Barry, of Rochester, N. Y., exhibited thirty varieties of well-grown Winter Pears, many of which are new, and all or nearly all from good to fine quality. Your committee hope they will be excused from a critical examination of this beautiful collection, but prefer to have them considered in "Committee of the Whole," when the discussion of Pears takes place.

There are also many others which are worthy of attention, and which we would gladly mention, had the Society the time to consider them.

We wish to congratulate the Society on the fact that so excellent a show has been improvised at the close of so poor a fruit year. Much has been done, and much more is doing to render these annual convocations of this body suitable times and places to separate fancies from facts, as well as facts from fancies.

GEO. M. BEELER,
N. L. WOOD,
S. B. MARSHALL, } *Committee.*

Of course, many of the varieties of pears were not yet in season, and being only three or four days out of the cellar, needed a warm room for ripening; hence the eating qualities of only a few could be judged by the Society. Winter Nelis and Lawrence were in condition and pronounced "best." Doyenne d' Alencan and Passe Colmar were quite good. Pater Noster, Josephine and McLaughlin very fair; and Jaminette was voted too good to be classed with "cooking pears," as was done by Messrs. Ellwanger & Barry.

REPORT ON FRUITS FROM PROF. NYCE.

Your committe, to whom was assigned the duty of examining the fruits shown by Professor Nyce, and which have been preserved in the most perfect condition by the system invented and introduced by Professor N., consisted of the following kinds and varieties:

Pears.—Duchess de Angouleme, Belle Lucrative, Louise Bonne de Jersey, Onondaga' Bartlett Seckel and Beurre d' Anjou.

Foreign Grapes.—Black Hamburg, White Sweetwater, Muscat of Alexandria and Royal Muscadine.

Native Grapes —Diana, Delaware and Catawba.

The specimens of grapes and pears shown were as sound and perfect as when put away in September last, and those tasted by your committee retained nearly their natural flavor and quality; and your committee believe fully justify the inventor in what he claims as one of the excellencies of his invention, viz.: the preserving of fruits in a state unchanged in respect to flavor and quality. This point has been one of the most desirable to secure, and your committee congratulate the inventor on the success he has attained. The unchanged condition secured by this system is shown by some of the bunches of grapes examined by the committee in the fresh greenness and fulness of the pedicles and fruit stems. On the Catawbas were some berries partially decayed, by insects or disease, but the rest show the same appearance as when growing or taken from the vine. The duty assigned your committee is associated with the pleasant retrospection that we, as members of the Cincinnati Horticultural Society, were among the earliest, if not the first members of a public body, to report on, and strongly commend, the valuable invention of Professor Nyce; and their visit to the first structure he erected to demonstrate its practical value is still remembered as among their most pleasant recollections, and it is a source of pleasure to further know that the public are beginning to appreciate its value, and the genius of the inventor to receive its substantial reward. A proof of which our Society had another instance of in our visit to the substantial establishment recently erected in Covington, by Caldwell Bros.; and in this connection your committee return their thanks to Messrs Caldwell, for their kindly courtesy and generous attentions on the occasion of our visit to their establishment.

Respectfully submitted by

GEO. GRAHAM,
WM. HEAVER, } *Committee.*

DISCUSSION ON PEARS.

Some time was spent by the Society in discussing and revising the catalogue of pears; but as only a few of the members had any opportunity for testing varieties the past season, very little alteration was made in the list, and it has since been thought best to omit printing the catalogue this year, only giving a list of the most approved sorts, with the understanding that the catalogue will be revised and republished next year.

Winter pears from Rochester.—The following is the list of 30 varieties of winter pears on exhibition from Ellwanger & Barry:

Columbia,
Homewood,
Bezi Sanspareil,
Fondante de Noel,
Doyenne d'Alencon,
Susette de Bavay,
McLaughlin,
Easter Beurre,
Prince's St. Germain,
Pater Noster,
Passe Colmar,
Doyenne Sieulle,
Beurre Bachelier,
Beurre Gris d'Hiver,
Epine Dumas,
Lawrence,
Winter Nelis,
Vicar of Winkfield,
Figue d'Alencon,
Josephine de Malines,
Beurre d'Aremberg,
Beurre Langelier,

COOKING PEARS.

Chaptal,
Black Worcester,
Doyenne Goubault,
Willermoz,
Ralley,
Beurre Leon Le Clerc,
Bezi des Veterans,
Jaminette.

Most of these were exceedingly well grown and fair looking specimens, making a beautiful show.

CONCLUDING PROCEEDINGS.

Place of next Annual Meeting.—The Secretary read a letter from Wm. S. Imlay and others, inviting the Society to appoint its next annual meeting at Zanesville. The Secretary said there was a large region of good fruit growing territory in the Muskingum Valley and eastward to the Ohio river, which has been but little heard from, thus far, in meetings of the Society, and he thought it would be a benefit to that portion of the State if the meeting should be held at Zanesville. He believed the people of that region would take pleasure in attending the meeting, and sustaining the Society by becoming members.

Mr. Miller invited the Society to meet at Springfield, and set forth the claims of that place.

On a vote being taken, it was decided to hold the next annual meeting at Zanesville, in December next.

Department of Agriculture.—The following resolutions were presented by Mr. Heaver, and adopted unanimously by the Society:

Resolved, That we feel deeply interested in the great Department of Agriculture connected with our Federal Government; that we desire its entire success and believe it te immensely to the advancement of agriculture in the country

that we earnestly entreat the President of the United States to appoint a competent man to be the head of the Department of Agriculture, the incompetency of the present incumbent being a source of general remark and complaint from the intelligent agriculturists of all parts of our extended country.

***Resolved*, That in the opinion of this Convention, a change in the head of the Agricultural Department is imperatively needed for the best interests of the producing classes of the country, and the President of the United States is most respectfully petitioned to listen to the complaints embodied in the foregoing resolutions.**

On motion of Mr. Mears, it was resolved that the thanks of the Society, especially of the members living in the vicinity of Cincinnati, be tendered to our northern friends who have so generously and bountifully supplied our tables with apples, pears and grapes on this occasion.

After a vote of thanks to the President and Secretary, the Society adjourned.

REMARKS ON RASPBERRIES AND CHERRIES.

BY F. R. ELLIOTT.

M. B. Bateham, Esq , *Secretary Ohio Pomological Society :*

Dear Sir :—Although I feel that but little new or interesting can be written by me on the subject proposed, I am nevertheless disposed to comply with the request of the committee, and to " add line upon line," not for the use of our old cultivators of Ohio, but for the possible benefit of young beginners or new readers.

The cultivation of the Raspberry, as a market fruit, is not to be found around Cleveland upon any very large scale; and perhaps the same may be said of all northern Ohio. Small patches, varying from one-eighth of an acre to two or three acres, are, however, to be found in the gardens or grounds of nearly every fruit grower; and so universal is this the case that our market is generally well supplied for its home demand, with perhaps a few hundred bushels to send away. Of varieties grown, the one here known as common Red Antwerp, now generally distributed through the country as Allen, is most universal; but the true Red Antwerp, Hudson River Antwerp, Fastolf, Franconia, Rivers' Monthly, Kirtland, Brinkle's Orange, Col. Wilder, Howell, Catawissa, Doolittle's Black Cap, and many others, are in cultivation to a greater or less extent.

The common Red Antwerp is a hardy and productive variety, of good fair flavor and size, but rather too soft for distant transportation.

The variety disseminated as *Kirtland* is distinct from the above, and may have been a seedling from it, although the cane is a lighter color. The original plants of Dr. Kirtland's stock, from whence Mr. Lum gave the name, stand in a little patch just west of his residence, but from whom or whence received, I believe the Doctor has no record. More or less of them, however, are found in the patches of raspberry growers around Cleveland, giving cause to suppose it to have once been known and cultivated by some of our earlier fruit amateurs under another name. George Hoadley, Esq., deceased, father of Judge Hoadley, of Cincinnati, introduced many new fruits into this section; so also Mr. Richard Lord, and others; and, in earlier days, distributed freely to all who would take and cultivate. Names were told, but rarely retained by the receiver. The Kirtland may claim perfect hardiness of cane, and equal prolificness with the Common Antwerp, and perhaps a larger sized fruit, with a brighter color, better flavor, and a little firmer.

Hornet.—This variety, that was to "set the world on fire," seems to have got pretty well mixed up with others, or else lost, as it is difficult to find a plantation of it. As a market fruit, I do not think it equal to Kirtland.

Naomi is a new variety grown from seed, probably of Franconia; hardy canes; large sized, bright colored and firm fruit, of very good flavor. As yet it is only grown by the originator in any quantity, but there the soil being of a rich clay loam, with stiff clay subsoil, it produces abundantly.

Philadelphia I have not seen in fruit around here, but from former acquaintance I should advise its trial on a small scale. I doubt its supplanting Naomi or Kirtland.

Brinckle's Orange unquestionably stands as yet at the head of light colored berries, and is generally found among our amateurs, and occasionally grown for marketing. Were it more hardy it would be more generally grown, but the care of laying the canes down each winter is too great to pay as a market fruit, unless a better market be had than Cleveland. Here there are too many gardens owned by the wealthy, and too few wealthy men without gardens, to make anything but quantity and show desirable for a market fruit. One grower of this variety on warm sandy soil, has succeeded several years in gathering fair crops from it, without laying it down, but the past season he found the demand and price for the fruit so much increased, that he has now laid it down, covering slightly with earth.

As a mulch or winter covering for this and other tender varieties, why will not the bagasse of our sorghum cane be good? I think it will pay each grower to draw his refuse cane home from the mill, and use it on his raspberries, strawberries, &c.

Of other varieties that I have named, only *Doolittle or Improved Black Cap* can be said to be grown, except in the gardens of a few amateurs, because of their too tender canes. The Black Cap has been planted especially for market purposes by some parties, and, so far as I learn, with profitable results.

Transplanting.—In the usual course of things the season advised for planting out raspberry canes has been autumn for light soils, and spring for heavy soils. Some experience of years ago, and again the past season, suggests that possibly this may be changed for the better. I find the young plants to remove as easily and safely as strawberry vines. Taken when about four inches high and transferred, they form good canes fit for bearing the next season; and from this height until say last of June, the young canes can be transplanted very successfully.

Cultivation.—In the manner of caring for the canes, one grower lets them grow thickly along a row, hedge like, cuts out the old or past-bearing wood, and mulches the ground freely; rarely cultivates or hoes among them. He thinks the mulches, added and rotting from year to year, keeps them nearer to nature than other ways of culture, and certainly he is successful in crops. He clips the tops, and does not tie or stake.

Another grower keeps the ground well cultivated and hoed, drives stakes once in about thirty feet in the row, and stretches a wire along about three to three and a half feet high from the ground, to which he ties the top end of every cane. He also is successful in crop, and his plantation presents to the eye a neater appearance than the hedge row and mulch, but it costs more, and in view of profit seems no better.

CHERRIES.

Grape growers dread the rot in the Catawba, and cherry growers here, where once none but the *Yellow Spanish* variety decayed before ripe, now dread the appearance of rot in the cherry, until cherry-growing for profit of many of our really best light colored varieties has come to be a question, not always decided favorably.

Before enumerating varieties I may state, that like the rot in the grape, which exhibits itself least on young vines, so the rot in the cherry exhibits itself least on young trees. If we take the ground, and I see no other, that its cause is atmospheric, then we have a reason for its appearance being greater in the old trees than in the young, because of the less abundant material stored in the bud and supplied to the fruit, rendering it more susceptible to whatever action the condition of the atmosphere may exert.

This theory is again sustained by the fact that the disease, whatever it is, is most common in the varieties of medium time of ripening, the earliest sorts, as well as the latest, usually escaping, from the cause, as may be supposed, of the first maturing before drouth and heat have become great, and the last from having a longer period for the fruit to perfect itself.

How much this rot disease may be checked, or prevented, by use of the agents advised by Professor Salisbury, remains to be tried. I think it will be, during the coming season.

VARIETIES.

Early Purple Guigue.—This variety now stands at the head of the list for a profitable early market sort. Its fruit is of good size, and even if gathered before fully ripe is quite good, and being dark purplish red or nearly black, it commands ready sale for transportation. The tree, we know, is only moderate in its growth while young, nor does it produce very abundantly until eight to ten years old, characters that really add to its value than otherwise, as they render it less liable to injury from extreme temperature, and probably add longevity.

Rockport is our next desirable variety of sweet cherry, for although of a light color, it ripens so early and the natural vigor of the tree is such that even old trees seem less disposed to have their fruit rot than many other sorts. The tree being very upright and handsome in its habit of growth, is well adapted to the front or rear grounds of unpretending suburban and country places.

Pontiac, a black cherry, of medium time of ripening, seems to have escaped rot better than most sorts of its immediate season; and its fruit is so large and firm and high flavored, that it commands at once the highest price in market.

Red Jacket, a late sort, also has escaped rot. Its native vigor and hardiness of tree, together with its late period of maturing fruit, seem to induce belief that it will continue free from disease. I will add that a tree, grown from buds, sent Colonel Wilder, Dorchester, Mass., and now standing in his grounds, has stood the vicissitudes of that climate perhaps better than any other sort. It is one of the finest trees in his grounds. The fruit is considerably larger than Downer's Late, and it is devoid of any mazard taste.

The *Arch Duke*, different from May Duke and Late Duke, has this past season shown beautiful fruit, and while its habit of growth is, perhaps, more upright and better than the two last named, it has ripened its fruit evenly, and not scatteringly as do the May and Late Dukes.

Among the strictly sour cherries or Morellos, *Early Richmond* continues to hold its own, but were I to select one single variety, it would be *Louis Phillip.* The tree of this variety is more vigorous in its habit than Early Richmond, and its fruit is rich and not too sour to be pleasant to eat. It is a great producer of large sized fruit, for a Morello, and for canning purposes has no equal.

Some years since I suggested that the variety known as *Donna Maria* might possibly be *Early May* of the South-west. Not having the latter here to compare I am not yet certain, but continue to think as formerly I wish some careful, observant fruit grower, possessed of the two named sorts would compare them and report in due time.

SEEDLINGS.

Seedlings are continually being brought out—I having examined at least forty different good ones this past season—many of them have good characters and will prove very fine fruits; but with the stock of varieties now in cultivation, a new sort to be recommended should possess some very valuable trait not now possessed by a named variety.

Cleveland market is destined, in a few years, to exhibit a singular appearance to the cherry-fancier, for seedlings have been and are now so frequently planted, many of which bear fine, light colored fruits, too good to destroy, and not good enough to describe, that the cherry season in our market will puzzle more than the Dutch.

The practice of many is as follows: In spring, at the time when young seedling cherry trees should be about four inches high, go under a tree from which the fruit was only but partially gathered the last year, and here, if the ground has been kept light or mellow, more or less of young seedlings are found. These are taken up with a trowel and transplanted into a nursery row, where they grow two or more years, when they are again removed to their permanent fruiting position.

As "line upon line" may be written to inculcate what one believes to be a truth, let me repeat my old statement, viz: That by budding the sweet cherries on the *Morello* stock, there will be comparatively little difficulty in successfully growing them in any part of our State. The Morello dwarfs the free growing variety from the first year of growth, and by the extra firm and short jointed wood formed, renders less the liability to injury from extremes of temperature. Many fruit growers in Illinois, I notice, are now growing cherry trees worked on Morello stocks, and successfully, even on the rich, deep prairie soils. Let us not be behind them but so adapt our best varieties to stocks that every man, no matter what his soil, may be enabled to eat cherries from his own trees.

Very respectfully,

F. R. ELLIOTT.

LETTER FROM I. D. G. NELSON, ESQ.

ELM PARK, NEAR FORT WAYNE, Dec. 2, 1865.

Doctor Jno. A. Warder, President Ohio State Pomological Society:

DEAR SIR—I regret exceedingly that it will not be possible for me to be with you at your meeting on the 6th inst.—I regret it the more, Mr. President, for the reason that we owe so much to you personally for the valuable information you have contributed to our Society, by attendance at our meetings, as well as otherwise. We are also indebted to other members of your Society who, at different times, have aided us by their counsel and advice. But, our Secretary Beeler* will be there. He is a capital hand, as you know, to "pick up things that drop" on such occasions, and will give you something in return, perhaps, in part pay for what we owe you, and the only chance left us will be to take the benefit of the horticultural bankrupt law for the balance.

I send you, agreeable to request, a few specimens of such varieties of apples as I conveniently can. I had a pretty large crop this year—nearly all varieties producing very well, although the general appearance of the fruit, owing to the wet season, is not as handsome as usual, as you will see by those sent, which, however, are mostly either new sorts that are attracting some interest, or such as are not in general cultivation at the west. I append a few notes to some of the varieties, where the observations of the present season confirm those of previous years.

Please convey to your fellow members my individual regard, and best wishes for the future prosperity of your Society. * * *.

NOTES AND OBSERVATIONS ON A FEW VARIETIES OF APPLES,

AS GROWN AT FORT WAYNE, INDIANA.

King of Tompkins County.—A very large apple of the best quality; bears well, but the fruit drops badly and does not keep well. It is an amateur apple, belonging to the first class.

Wagener.—Does finely, bearing abundant crops of good fruit every year. Keeps pretty well, and is profitable.

Ben Davis.—Like the preceding, it bears very young and abundantly; fruit always fair; keeps till April, or longer, if required. I regard it at the present time the most profitable apple I cultivate.

Belmont.—A great favorite. An overcrop this year, as usual, damaging the trees, the limbs of which are more brittle than some other varieties. Inferior specimens sent, not being able to get at the best. The same with the Ben Davis and others.

White Pippin.—An excellent old variety. The specimens sent were taken from a Canada Reinette tree. I regard the two varieties as identical, or else I have been unfortunate in not obtaining or seeing a true Canada Reinette.

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* Since this report was compiled we have been called to mourn the decease of this devoted pomologist and our beloved fellow-laborer. President Warder was with him during his short illness, till the close and his heart grieves as over the loss of a son.—SECRETARY.

Evening Party.—A very handsome, delicious, small and sweet apple; specimens rather over size; quality, best season, early winter; a No. 1 amateur apple.

London Sweet.—Bears regularly a good crop of large, nice apples, uniformly fair; good for baking in October, and winters until February.

Bentley's Sweet.—A showy apple of medium quality. A good bearer and superb keeper; crop large this year, and for some reason that can not account for, and unlike most other varieties, did not color or mature its fruit well this season, as will be observed by the specimens sent.

Jersey Black.—An apple of only second quality; but owing to its uniform crops of fruit of fair appearance and excellent keeping qualities, it ranks among the profitable apples for market.

Jonathan.—Is a handsome little apple, popular in many western localities, but has not proved satisfactory with me.

Esopus and Newtown Spitzenberg—Are not profitable. I would not put either of them even in the amateur list, except in large collections, and then very sparingly; so with Roxbury Russet and all other Russets for that matter, save the American Golden.

Northern Spy—Produced a large crop of fine fruit this year; hope it will keep better than usual, which it now indicates, or we must give it up. The beauty and hardiness of the tree plead earnestly for us to hold on to it.

Baldwin.—An immense yield of beautiful apples induced me almost to forget its faults; but the cruel *bitter rot* is, I find, pursuing its victims, however, with much less *bitterness* than usual.

Smith's Cider and Yellow Belleflower—Neither of which were sent you, probably, produced finely this year, and are both very profitable sorts for market purposes.

ON GRAPE SOILS.

BY DR. J. A. WARDER.

This is a topic which has very properly attracted a great deal of attention among grape growers, and upon it some of the best talent of our pomologists has been bestowed. The great question is, what soils are best adapted to *viti-culture?* In the solution of this important problem, we find that a great diversity of opinion prevails among men who are distinguished for their acumen in observation, as well as for their superior judgment in deciding grave questions. Before coming to any hasty conclusions, perhaps it will be well for us to consult the oracles of Dame

Nature. Was she not the first great vine planter? and surely she should know something of the wants and tastes of her proteges, having had the greatest and most extended experience of any of us.

Our information derived from this source shows us that the grape vine may be found growing on all the various soil formations of the world. We find them on bare rocks, that appear destitute of earth, except in their crevices; we see them thriving with luxuriance upon gravels, on clays, on murky soils, on the richest alluvials, on the river bottoms, on sands: and even on the sand-bars of some of our streams, as well as on the shores of the ocean, we find grape vines. Some of these soils contain lime in abundance, while others are nearly destitute of this element. Potash, being one of the constituents of the grape, would, however, appear to be a necessary constituent of every soil upon which this plant is found to thrive.

Geologically these plants appear to be equally diverse in their selection, for they are found upon the granites of Arkansas; upon the trappean rocks of Europe and Asia; upon the modern volcanic scoria of Italy, and of the Western Islands; upon all limestone formations of whatever age and character; upon the shales and sandstones of the coal measures; upon the chalk prairies of the southern States; upon the tertiary sands and clays of the Atlantic coast, as well as those of the western plains, and upon the half-formed tufaceous rocks; while the great drift formation with its varying gravels and sands and clay diluvium, as well as the more finely comminuted diluvium also have their grape vines.

So much we may learn from the study of Nature. It amounts to this: Every rock, every soil, in a suitable climate, may produce the vine. But, further, if we properly observe and study Nature, we shall find that each soil has its peculiar kind of grape, which would appear, naturally, to be better adapted to this than to any other situation; and this fact may become a matter of great practical value to vine-planters.

In this view it will become very important to study the natural soil of each species and variety of the grape we may desire to cultivate, and thus to ascertain which varieties may be most likely to be best adapted to, and prove most successful in, our own locality. Still, we shall have abundant exercise of our powers of observation, for, after all, we must experiment, and decide by that rigid test.

As a general proposition, the majority of observers—and they to whom we look with confidence for an answer to the question of soil—will direct us to the *clays* as best adapted to vineyard culture. This is especially the case with those who have derived most of their experience from the culture of those grapes which trace their origin directly to the species ***vitis labrusca.*** [Catawba, Diana, Iona, &c.]

THE LAKE SHORE DRIFTS.

A large majority of the vine-planters upon the lake shore prefer stiff clays. This is true in the southwest, where there is a considerable admixture of lime and limestone boulders in the clay; and it is equally true of those who reside toward the northeastern limit of the State, where the clays are derived, in a great degree, from the aluminous shales of that region upon which they rest, and where the proportion of lime is quite small. By the most intelligent and the most observing, as well as the most successful cultivators of this region we are told to select the clays. No matter how stiff, no matter how close, no matter how perfect a water bed—if it be even poor, hard, white clay, that has naturally produced a forest of large white oaks, or if it has been a wet hickory flat—they tell us that it is good grape land, needing only *thorough drainage* to make it yield abundant crops, especially of the Catawba grape.

In the neighborhood of Sandusky, on the peninsula north of the bay, and upon some of the islands, rich clays of this character are to be found, which have been devoted to the grape, and upon them the vine has been eminently successful. And it is a very common opinion, now, after many years experience, that the clay cannot be too hard and compact for the roots of the grape to penetrate. The natural indications there preferred are the stiff clay, the oaks, and among the humbler plants the Pennsylvania Blue-grass, or *Poa compressa*, which always takes possession of such clays, particularly if they contain lime.

It is somewhat remarkable that wild grape vines, growing in the greatest luxuriance, are not always safe guides to the vine planter, though often referred to by writers as an index directing the attention of the settler of a new country to the propriety of grape culture. This is probably because we do not plant varieties to which the soil is equally congenial; and this will be appreciated by those who adopt the views already advanced, respecting the adaptation of soils to varieties.

The pioneer planter of the lake region even declares that those vineyards which were prepared in the most thorough manner by trenching, always heretofore recommended, are the most unsatisfactory in their results, and that the best and most productive, are heavy soils that were merely well plowed, and the roots were placed in holes dug into the hard and previously undisturbed clay, and then firmly trodden in at planting. Nor does he stand alone in the advocacy of these views. Others concur fully; but while deprecating the expenditure of so much labor in the preparation and comminution of the clays by trenching, they also insist upon the importance and thorough necessity of under-drainage upon such soils, putting the tiles thirty feet apart, but preferring to have them at sixteen feet intervals, or even eight feet, that is, between every two rows. Those who have experimented with tile, will point with the pride of an old ditcher to the happy effects produced upon the vines that come within their influence.

On other portions of the Lake Shore region, we find similar views are maintained as to the value of clays; but we shall also find many eminently successful vineyards situated upon gravels, especially those which contain a portion of clay, and here the happy result is no doubt traceable to the good natural drainage which gravel affords. Even among the islands referred to, there are many very profitable plantations that are similarly situated upon stony and gravelly land, as well as those upon clay.

Pure sands are not generally successful when used as grape lands, unless they are based upon a clay subsoil, in which case they have proved eminently satisfactory in some regions, and with some varieties of the grape. About Cleveland, and at various points along the Lake Shore region, there are ancient beaches, well known as the Lake ridges, which are composed of sandy soil, containing, however, quite a mixture of other ingredients, and sometimes consisting of loamy soil rather than sand. Upon some of these the grape is cultivated quite profitably, and there are not wanting advocates of sandy soils for vineyards. In these situations it will probably be found that there is a sufficiency of aluminous material in connection with the sands, or in the lower strata in the subsoil, as may readily be seen in excavations and in the exposed bluffs along the lake. It is our firm belief that the varieties of grapes we chiefly cultivate do love clay, and we know they will find it if within their reach, and that they can penetrate it with their roots even at great depths, and where it has never been disturbed by the hand of man. This was satisfactorily proved in the vineyard of Mr. R. Buchanan, of Cincinnati, some years ago, by opening a pit among the vines; after digging below the trenched soil into the hard clay, which could scarcely be loosened by the pick, and when he had reached a depth of four feet, there was still an abundance of grape roots to be seen forcing their way into this unpromising and apparently impracticable soil.

THE COAL MEASURES.

While discussing the question of grape soils, we must not omit the consideration of those found in the coal measures, since we have had such flattering accounts respecting the vineyards about Pittsburg and in the neighborhood of Wheeling.

The rocks here being sandstone and shale, with occasional bands of limestone, the soil resulting from their disintegration, and with very little of the drift formation super-imposed or mingled with it, is just what we should expect to find it. It is loamy and underlaid by clay that is often exceedingly tenacious. On the abrupt hill sides, many of which have been planted with grapes, the shale predominates, in a less decomposed condition, and is mingled with fragments of sandstone, so that in some vineyards the whole soil seems to be a mass of thin layers of rock broken up, rather than earth suitable for planting. Lower down, however, there is clay holding water, though the upper layers must be very well drained. Upon such material the vines appear to thrive. In the valleys we find terraces of sands and gravels, such as are common to most of our large rivers; and here we may also discover extensive flats of clayey land—upon the former the grapes have not been remarkably successful, but upon the clay deposits they have given greater satisfaction.

THE BLUE LIMESTONE REGION.

Here in our own region (around Cincinnati) once considered the favored centre of vineyard cultivation, we find quite a difference in the views of planters. The Germans selected the steep hill sides of the silurian limestone formation, where the soil is derived immediately from the decomposition of the shales that alternate with the limestone. These, being highly calcareous, furnish a tenacious clay, rich in lime, very retentive of water, and becoming hard when dry. Under-drainage has not been practiced to any great extent in such situations, except so far as it is furnished by the stone walls, often used to support the terraces, where the hills are steep, but in such situations the surface drainage is abundantly rapid. Upon the hill tops the soil is more loamy, and often quite friable, and here it is underlaid with a tenacious clay, needing underdrains even on the highest points. In such positions there is occasionally a deposit of drift which is sufficiently porous for natural drainage. In the great valleys of excavation we find natural terraces of sands and gravels along the rivers, resting upon and against great beds of diluvial clays, which latter, when planted with the grape, have succeeded much better than the gravelly and sandy terraces. The deep alluvials of the river bottoms have not proved at all satisfactory.

We may find vineyards in all these several situations, and there are advocates for each; but the general experience is adverse to the river terraces, and favorable to the clays of the hill sides, of the elevated diluvium of the ancient valleys of excavation, and especially to the soils found upon the more elevated hill tops.

In conclusion, the vine-planter is recommended to study the habit and preference of the particular variety of grape he designs to cultivate. Endeavor to ascertain the soils to which it is best adapted, or the grapes that succeed best upon such soils and situations as he may be possessed of, and select accordingly.

CLIMATE OF THE LAKE SHORE.

Influence of Atmospheric Humidity—Want of Scientific Observations.

LETTER FROM J. S. LIPPINCOTT.

HADDONFIELD, N. J., February 15th, 1866.

M. B. Bateham, Secretary Ohio Pomological Society:

RESPECTED FRIEND:—Through your kindness I am a recipient of the Twelfth Report of the Ohio Pomological Society, for which I desire to return thanks. Much of this report I have read with pleasure, deeming it highly interesting and valuable. I was pleased to find that the value of your Lake, as an ameliorater of your climate, had attracted more attention, but must regret that systematic investigation has not been instituted by means of meteorological instruments in the hands of skilled observers. There does not appear to be more than one reporter to the Smithsonian Institution on the whole southern lake shore, though there are three in Austinburg; ten miles distant.

As you justly remark, the influence of the lake, as affecting the climate along the shore is far from being understood. Your suggestion that the absence or presence of humidity may affect the quality of the fruit, is in the right direction—indeed, I deem this to be the key to the mystery; but the scarcity of hygrometric instruments, or psychrometers, leaves us mostly in the dark as respects the determination of the actual proportions of watery vapor in the air on or near the lakes.

Dr. Henry, of the Smithsonian, informed me recently that it is his intention to place such instruments in the hands of gentlemen located at various important points, for determining regularly the state of the atmosphere as respects humidity. Would you not consent to become an observer at your home station? or does your business call you from home too frequently to permit you to give regular daily, three times daily, careful attention to the duties required of such an assistant in scientific research?

In the meantime, can you aid my inquiries into the cause of the extensive grape mildew, &c., which is said to have visited the shore region as well as elsewhere during the past year? *I am engaged in researches on the influence of the Lakes, and would be thankful for any information you or your friends can supply.*

Does no one observe the thermometer at Painesville? If there is one there, what were the circumstances attending and preceding the advent of the mildew? Supposing the blight did not appear until the last of August, as it did here, I would ask what was the state of the *minimum*, or in its absense, of the standard thermometer at 7 A. M. from the 12th to the last of August—that is, what were the lowest temperatures and when were they observed?

2d. If any one thereabouts keeps a hygrometer, what was the state of relative humidity on the days when at 2 P. M. or 9 P. M. it was lowest?

3d. In what direction was the wind during the coldest period of the last three weeks of August—whether over the lake, or from the south or southwest over the land?

4th. In short, what were the circumstances in any way peculiar which might predispose to the disease?

Numerous observers in New England, New York, New Jersey and Delaware, agree that the *hot days and cold nights of August* induce the mildew; and I agree with them, instructed thereto by the evidences of my self-registering thermometer and psychrometer, and the experience of more than one year. That the absence of humidity, or a very low degree of atmospheric moisture, predisposes to extreme cold on a summer's night, I am convinced, and have adduced ample evidence in a paper offered to our "West Jersey Fruit Growers' Association," in February last, and of which I believe you have a copy. The experience of 1865 but confirms that of 1864, therein set forth.

5th. Has any person ever made detailed observations on the temperature of the lake at Painesville or elsewhere, or across the lake and at different depths, at any season or seasons? It is well worth while to make such examination, noting dates, depth, time and day, and distance from land. *Such data would be valuable for my purpose.*

6th. Have you or your friends kept records of the date of leafing, blooming, coloring, ripening, &c., of the various kinds of grapes grown among you? We need many such records. Perhaps you have observed the manner in which I have made use of the few materials at command in the Agricultural Department's Report for 1863. Such observations, properly tabulated, discussed and applied, are among the really valuable contributions to the science of Pomology. Why cannot we have them abundantly? They must be carefully connected with accurate thermometrical observations to be of real use.

With the hope that you can materially aid my inquiries, and will also favorably consider the suggestions above made, permit me to subscribe myself your friend,

JAMES S. LIPPINCOTT.

[REMARKS.—The foregoing was not written for publication; but in view of the importance of the subject, especially to the grape growing interests of our Lake Shore region, it is earnestly commended to the attention of those who are rightly situated and feel disposed to aid in the work of making meteorological observations. By writing to Prof. Henry, at Washington, they will be furnished with instructions and instruments.—SECRETARY.]

LIST OF FRUITS FOR OHIO.

For three years past this Society has compiled and published a list of fruits, in tabular form, showing how each variety succeeds or is esteemed in the five different sections of the State. For this year it is thought best to omit this catalogue, and only give a list of those varieties that are best known and most generally approved. The following have all been set down as approved, in not less than four out of five of the sections, (excepting *Baldwin* and *R. I. Greening*, which had five stars in three sections.)

APPLES.

Am. S. Pearmain, fruit approved, but Benoni as good, and grows better.
Astrachan Red, generally commended, especially for market.
Baldwin, good North and East, and in some localities South.
Belmont, very popular North and East; not so good South.
Bullock's Pippin, small, but fine flavor; for amateurs only.
Dominie, not sufficiently known; good and profitable for market.
Early Harvest, approved by all, but not always profitable.
Early Strawberry, generally approved, though rather small.
Fallawater (*Tulpehocken*), large and popular everywhere, though second rate.
Fall Pippin, good and popular, not very productive.
Golden Russet, of New York, one of the best of Russets; generally approved.
Golden Sweeting, everywhere productive and profitable; second rate.
Gravenstein, handsome and good; not very productive.
Hubbardson's Nonsuch, good and popular, especially North.
Jonathan, beautiful and first rate fruit, but a slender tree.
Large Yellow Bough, or *Sweet Bough*, good everywhere.
Lowell, or *Orange*, productive and profitable; generally approved.
Maiden's Blush, very productive and profitable everywhere.
Northern Spy, popular North, but a very tardy bearer.
Peck's Pleasant, one of the best, for North and East especially.
Porter, good North and East; not a strong grower.
Primate, not generally known, but esteemed where known.
Rambo, well known, generally popular.
Red Canada, good and popular, especially North; slender grower.
Rhode Island Greening, good North, and sometimes East, not South.
Roxbury Russet, generally good North, and some localities South.
Sops of Wine, good and popular wherever known.
Summer Queen, good and reliable, but not a great bearer.
Summer Rose, much esteemed, as an amateur variety only.
Talman Sweet, very productive and good, especially North.
Vandevere of N. Y., or *Newtown Spitzenberg;* generally good central and South.
Wagener, not generally known; promises well.
Westfield Seek-no-further, much esteemed North; not valuable South.
White Pippin, popular wherever known, especially central and South.
Wine Sap, good and reliable, central and South; moderate grower.

PEARS.

Ananas d'Ete, good as far as tested; said to be variable.
Andrews, little known; good where tested; on standard.
Bartlett, good every time; tree liable to overbear.
Belle Lucrative, excellent everywhere; best as standard.
Beurre Bosc, good only as standard; rather variable.
Beurre Clairgeau, beautiful and good; poor grower on quince.
Beurre d'Anjou, universally approved; large and profitable.
Beurre Diel, large and generally good, especially on the quince.
Beurre Easter, one of the best winter pears, if fully ripened.
Beurre Giffard, excellent; tree of slender growth; best standard.
Beurre Golden of Bilboa, handsome and good; moderate grower.
Bloodgood, rather small, but excellent as standard; moderate grower.
Brandywine, vigorous and productive; very good.
Buffum, splendid grower; fruit good, but not first rate.
Dearborn's Seedling, small but excellent; best as standard.
Dix, good fruit, but tardy bearer; won't thrive on quince.
Doyenne Boussock, worthy of general cultivation.
Doyenne d'Alencon, one of the best late pears; tree vigorous and productive
Doyenne d'Ete, very productive and good.
Doyenne Gray, generally good in Ohio.
Doyenne White, or *Virgalieu;* very good in most parts of the West.
Duchesse d'Angouleme, large and profitable, especially as dwarf.
Duchesse d'Orleans, or *Beurre St. Nicholas;* very handsome and good.
Flemish Beauty, first rate generally, especially as standard.
Kingsessing, very hardy and good, as far as tested.
Kirtland, productive and fine, standard and dwarf; nearly first rate.
Lawrence, valuable winter fruit—one of the best.
Louise Bonne de Jersey; fine grower, great bearer, and good fruit.
Madeleine, one of the best early; good grower, as standard.
Onondaga, or *Swan's Orange;* large and productive; nearly first rate.
Osband's Summer, productive and fair; soon decays when ripe.
Passe Colmar, productive; very fine if well ripened; standard.
Rostiezer, good, high flavor; tree a straggling grower.
Seckel, very productive and popular, though small fruit and tree.
Sheldon, one of the best of American pears.
Stevens' Genesee, approved generally; a little variable.
Tyson, delicious; one of the best early pears.
Urbaniste, very good everywhere and every time.
Vicar of Winkfield, very productive; good, if well grown and ripened.
Washington, deserves to be better known; good, to very good.
Winter Nelis, very fine; early winter.

PEACHES.

Barnard's Yellow, very good and profitable; resembles Y. R. Rareripe.
Coles' Early Red, generally good and profitable for market; not large.
Cooledges's Favorite, very good and handsome; profitable for market.
Crawford's Early, everywhere counted best of all for market.
Crawford's Late very hadsome and popular, but not a great bearer.
George the Fourth, one of the richest and best; not very productive.

Grosse Mignonne, excellent and universally approved; not a great bearer.
Hale's Early, new, and best of all, very early—a seedling of Ohio.
Heath Cling, best and most popular late cling.
Jacques, large, handsome, and good; resembles *Crawford's*.
Large Early York, productive and good every where.
Lemon Cling, handsome and productive; rather sour.
Morris White, much approved by the ladies for preserving, etc.
Oldmixon Free, one of the largest and best; profitable for market.
Oldmixon Cling, best of all clings, and very productive.
Red Cheek Melocoton, old and reliable market variety.
Smock, very productive and profitable; late.
Troth's Early, very early, and generally good and profitable.
Ward's late Free, good for a late variety; central and South.
Yellow Alberge, very productive and profitable for market.
Yellow Rareripe, very productive and profitable.

TREASURER'S REPORT—1865.

Balance on hand from last report	$197 87	
Received fees of members by President	6 00	
" " at Columbus and Sandusky	25 00	
" " by letter	35 00	
" " at annual meeting	50 00	
" appropriation from State	300 00	
		$613 87
Paid Secretary's expense to Columbus, compiling and correcting report	$12 00	
" bill printing and covering 400 copies of report	50 00	
" postage on 300 copies mailed	12 00	
" for paper, wrapping and mailing do	2 50	
" letter paper and printing heads	7 00	
" letter postage for the year	4 00	
" box envelopes	3 00	
" expenses of committee at Put-in-Bay	9 50	
" expenses of committee meeting at Columbus	8 50	
" expenses of President on committee and as delegate at Sandusky, (twice), Fort Wayne, Alton and Pittsburgh	41 50	
" expenses of Secretary at Sandusky, (twice), Columbus and Pittsburg	45 00	
" members of committee, viz.: G. Powers, $20; G. W. Campbell, $15; F. R. Elliott, $27.20; S. B. Marshall, $28; J. R. Miller, $21	111 20	
" printing 300 circulars for annual meeting	8 00	
" envelopes and postage for do. and letters	8 00	
" express on boxes, and postage	5 00	
		327 20
Balance on hand March 1st, 1866		$286 67

☞ *Members of the Society* who have not paid their annual fee ($1) for 1865, are requested to remit the same by mail to the Treasurer; and if they do not expect to be present at the annual meeting, they can at the same time remit for the year 1866.

Address, M. B. BATEHAM,
April, 1866. *Painesville, Ohio.*

☞It is expected that hereafter, arrangements will be made for printing the annual report immediately after the annual meeting, instead of waiting, as heretofore, until the next summer, when the type is set for its publication in the report of the State Board of Agriculture.

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OHIO POMOLOGICAL SOCIETY, 1866.

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F. G. Carey, College Hill.
Charles Carpenter, Kelley's Island.
Charles Kelley, "
G. C. Huntington, Kelley's Island.
H. P. McMaster, Leonardsburg.
H. R. Kinney, Portsmouth.
W. B. Russell, "
Stephen Boalt, Norwalk.
Giles Boalt, "
E. S. Stowe, Milan.
James Donipace, Perrysburg.
E. Luce, Ashtabula.
A. D. Strong, Ashtabula.
Wm. Wyld, Brownhelm, Lorain county.
V. L. Campbell, Putnam.
Jas. M. Wood, "
S. C. Haver, "
Isaac Hilliar, West Zanesville.
G. H. Vroom, "
W. S. Imlay, Zanesville.
Dr. C. C. Hildreth, "
F. J. L. Blandy, "
F. H. Penfield, Bellefontaine.
G Ballmer, Gilead, Wood county.
B. Foster, Plato, Lorain county.
Charles Downing, Newburgh, N. Y.
Alvah Bushnell, Iona, near Peekskill, N. Y.
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H. Berst, Erie, Pa.
Wm. Smith, Geneva, N. Y.
Asa Lamb, Geneva, O.
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J. L. Green, Granger, Medina county.
J. M. Curtis, Brooklyn, Cuyahoga county.
L. Green, Perry, Lake county.
J. C. Ferris, Seymour, Ia.
John C. Youtsey, Cold Spring, Ky.
R. H. Caldwell, Newport, Ky.
R. F. Caldwell, "

C. W. Ensign, Madison, Lake county.
E. F. Ensign, “ “
Geo. T. Cook, “ “
H. C. Phillips, Berlin Heights.
Z. Phillips, “
M. F. Cowdery, Sandusky.
J. S. Cowdery, “
D. C. Richmond, “
H. B. Lum, “
J. W. Upp, “
J. E. Marshall, “
W. Z. Barney, “
John McKelvy, “
Lewis Nicholson, East Rockport.
Dr. J. P. Kirtland, “
F. G. Hill, Dallasburg, Warren county.
Henry Hefflebower, Montclovia.
W. S. Bissell, Pittsburg, Pa
James Tanitt, Quincy, Ky.
Dr. W. A. Ashton, Cedar Grove, Ia.
Dr. C. W. Spalding, St. Louis, Mo.
Jos. W. Vestal, Cambridge, Ia.
M. L. Ferris, Throgs' Neck, N. Y.
Samuel Haycroft, Elizabethtown, Ky.
Dr. W. Stearns, St. Mary's, O.
Charles L. Campbell, Cambridge.
G. E. House, Mt. Gilead.
T. D. Bruce, Chesterville.
G. J. Barclay, Dalton.
John Kurtz, Leipsic, Putnam county.
V. A. Shankland, Bellevue.
J. D. Davis, Clarksville, Mo.
H. V. Cramer, 32 John street, N. Y.
W. M. Johnston, South Bend, Iowa.
Henry Myers, “ “